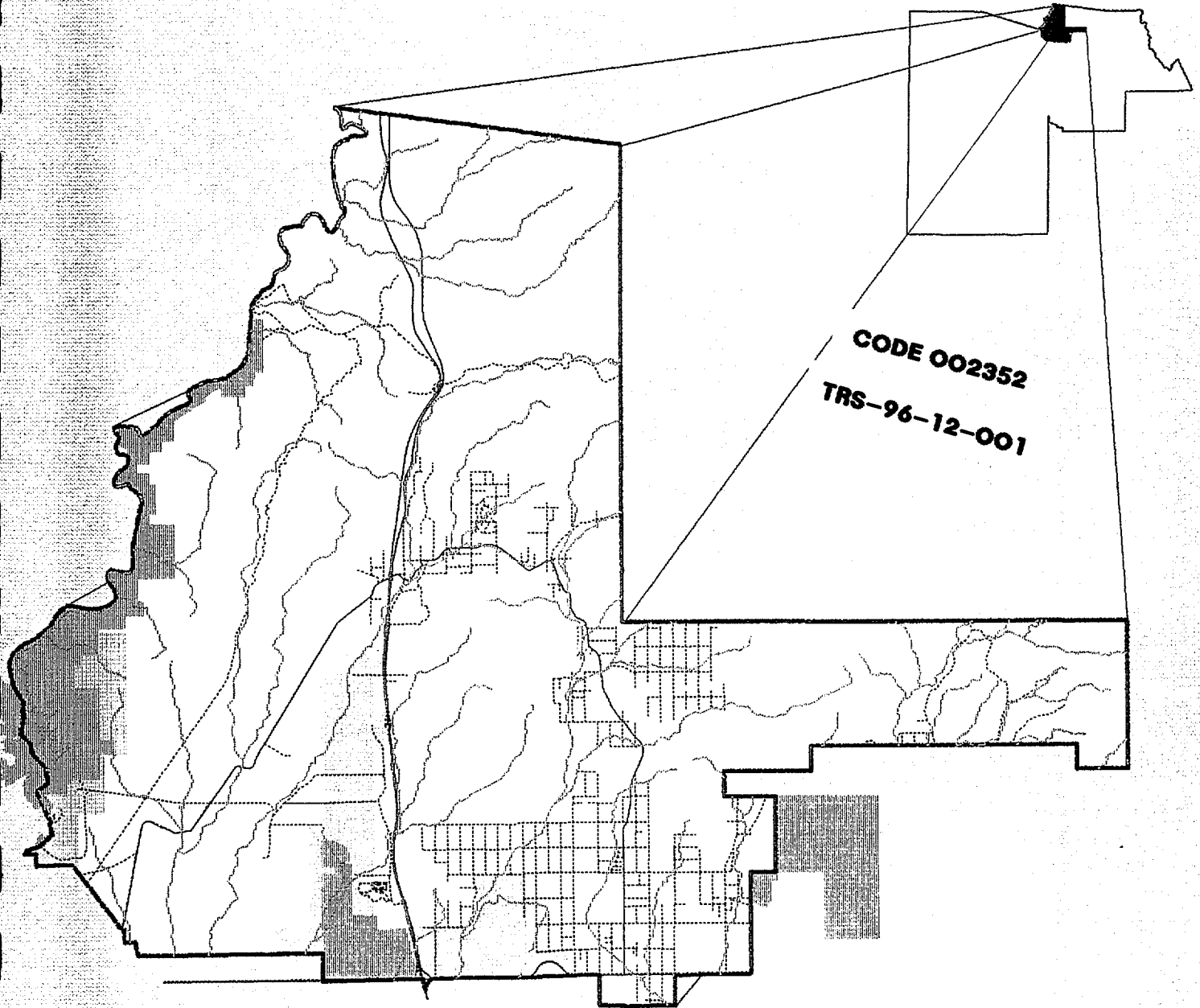


# *Northeast Valley Area Transportation Study*

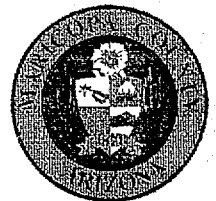


*Prepared by:*



**LEE ENGINEERING**

LOGAN SIMPSON & DYE



*December, 1996*

# **NORTHEAST VALLEY AREA TRANSPORTATION STUDY**

Prepared for:  
Maricopa County Department of Transportation

Prepared by:  
Lee Engineering, Inc.  
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December 1996

Adopted by the Maricopa County Board of Supervisors November 6, 1996

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Janice A. Miller, Project Manager  
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of Transportation

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## **NORTHEAST VALLEY AREA TRANSPORTATION STUDY EXECUTIVE SUMMARY**

### **DEVELOPMENT OF PLAN**

The New River/Desert Hills community is a rapidly growing area along the northern edge of the Salt River Valley. In 1990, the New River area, including the Desert Hills community, had 5,660 residents in 198 square miles. Since then, there has been considerable residential development; a factory outlet shopping center has opened along Interstate 17, and a large master-planned community of 5,600 acres has been approved.

The Northeast Valley Area Transportation Study has produced a transportation plan encompassing the New River and Desert Hills communities. The transportation plan contains a five-year program, a ten-year action plan and a long range transportation plan for the study area. The Board of Supervisors adopted this study on November 6, 1996.

The plan was conducted by the Maricopa County Department of Transportation (MCDOT). A Transportation Advisory Committee (TAC) coordinated the planning effort. The TAC consisted of representatives from the Arizona Department of Transportation (ADOT), MCDOT, Maricopa Association of Governments Transportation Planning Office (MAGTPO), adjoining cities and towns, the State Land Department, and neighborhood associations. Lee Engineering and Logan Simpson and Dye are consultants to MCDOT in preparation of this plan. Figure ES-1 defines the process of preparing and adopting this plan.

In addition to the TAC, a public participation program provided information to the public and solicited public comment and input. The program was coordinated with the Maricopa County Comprehensive Plan process. An extensive mail-out survey was conducted to measure public attitudes toward transportation issues. Two public meetings were held specifically relating to this plan. These were conducted on April 30 and June 27, 1996 in Desert Hills.

Following review and comments, the draft final report was presented to the Maricopa County Transportation Advisory Board (TAB). The TAB reviewed the plan and recommended it to the Maricopa County Board of Supervisors for adoption.

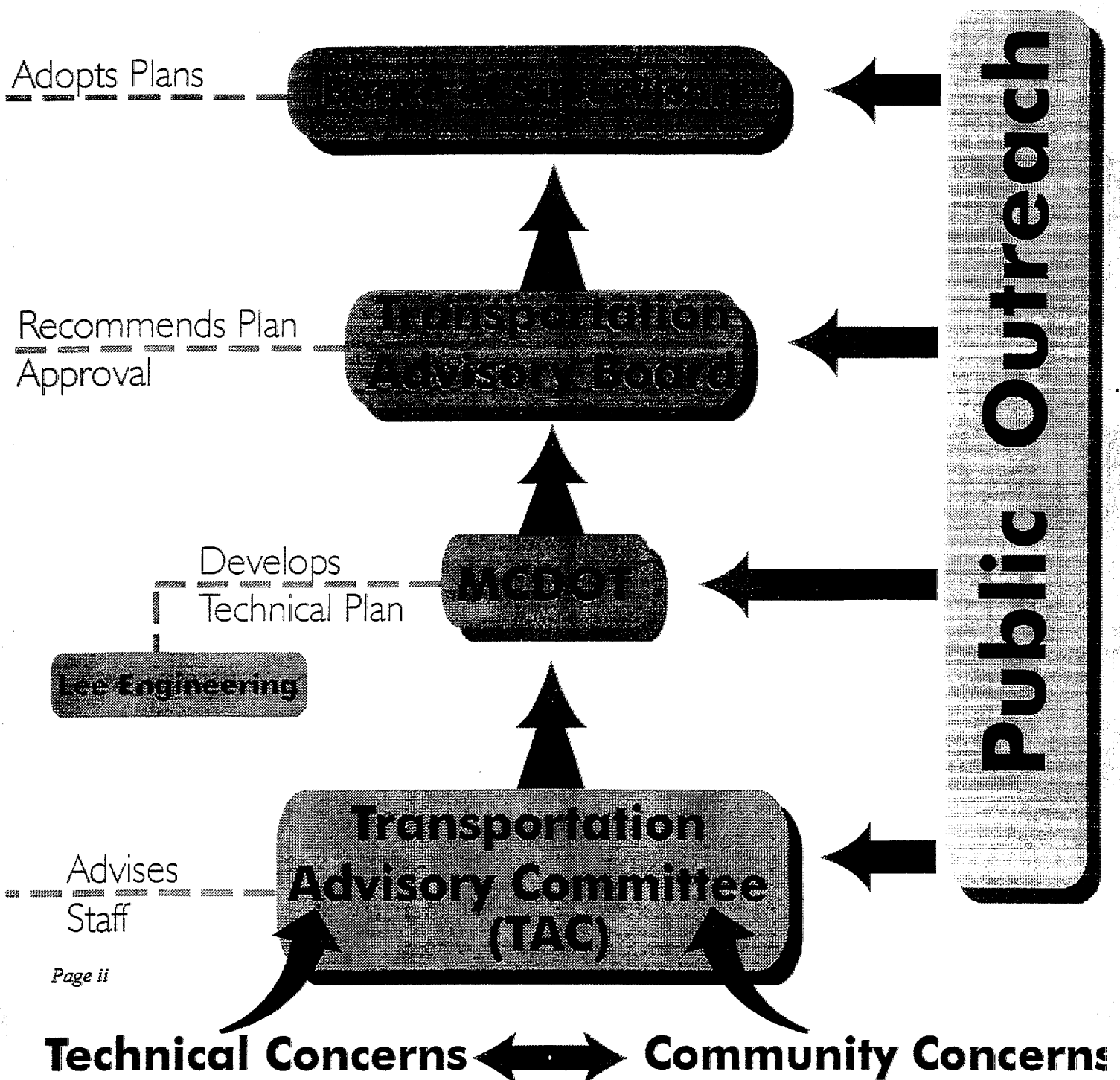
This plan will serve as a guideline for development of a multimodal transportation network in the unincorporated portions of the study area. The Maricopa County Department of Transportation has responsibilities for developing the recommended network of major roadways. The Planning Department will seek to advance trailways development and roadway right-of-way designation through the zoning and land development process. The Parks and Recreation Department will seek to implement the open space and non-motorized travelways portions of the plan.

Other agencies with significant impact on the study area should look to the Northeast Valley Area Transportation Plan as a statement of intent on the part of area residents. The Arizona Department of Transportation, State Land Department, Regional Public Transportation Authority, and

# MARICOPA COUNTY

## Northeast Valley Area Transportation Study

### PROCESS FLOW CHART



incorporated towns and cities are urged to conform their development activities in the study area to be consistent with the transportation recommendations of this plan.

### **Changes to the Plan**

As development of the study area occurs, refinements to this plan will of course be required. For instance, master plan approvals or other actions may contain stipulations affecting the major street network. In addition, this plan should be reviewed and updated periodically.

### **EXISTING CONDITIONS**

The New River/Desert Hills community is a rapidly growing area along the northern edge of the Salt River Valley. In 1990, the New River area, including the Desert Hills community, had 5,660 residents in 198 square miles. Since then, there has been considerable residential development; a factory outlet shopping center has opened along Interstate 17, and a large master-planned community of 5,600 acres has been approved.

The study area is located in the northern part of Maricopa County. It is bounded on the north and west by Yavapai County, on the east by the Tonto National Forest, and on the south by the city limits of Peoria, Phoenix, Cave Creek and Carefree. Lake Pleasant Regional Park lies along the western border. The terrain within the planning area ranges from mountainous rock outcroppings in the northern and central portions, to old alluvium in the southern portions. The landscape is characterized by typical Sonoran Desert scenes with plants of the Palo Verde-Saguaro Community.

Planning a transportation network for the Northeast Valley will be governed in part by environmental conditions, such as topography and dedicated open spaces. Some environmental features may impede roadway transportation. Conversely, these may support equestrian and pedestrian trails and other types of non-motorized transportation. As a means of developing a transportation network that minimized adverse environmental impacts, two types of influence areas were considered in developing a long range transportation plan: Strict Environmental Influence Areas, which should strictly exclude any type of roadway development, and Moderate Environmental Influence Areas, which should affect or limit roadway development but do not necessarily restrict development.

The study area represents an urban fringe area at the early stage of urbanization. Scattered residences have been built on large lots, which appeal to families seeking a rural or desert living space. Equestrian, pedestrian, and bicycle modes are popular for recreational travel. Planned communities and subdivisions are being constructed or proposed. The retail activity to support this residential land use has only begun. Very little industrial or major employment activity is in place today, but as the number of residences increases, proposals for such development can be expected.

### **DEVELOPMENT OF LONG RANGE PLAN**

To develop a long range plan, future conditions for the Northeast Valley Study Area were projected using a regional transportation modeling program. A set of travel demand models to produce traffic

projections. The models required two main input files: a socioeconomic data file and a roadway network file. Traffic estimates for the current year (1995) were made, using existing Maricopa Association of Governments (MAG) projections for the socioeconomic data, and the model was calibrated against 1995 traffic counts.

Population and employment projections were made to represent the highest level of development that can reasonably be expected in the study area by the horizon year (2015). This included 80 percent buildout of the Villages at Desert Hills master planned community and development of the non-environmentally influenced land south of the Honda Bow alignment at an average density of 1 dwelling unit per 1.2 acres. A high, but reasonable, estimate was necessary to properly determine the density and location of the arterial system, and to specify where and how much right-of-way will eventually be needed for transportation purposes.

Four alternatives were analyzed as potential future scenarios. These served as working tools in developing the recommended long range plan. The four main alternatives analyzed the various combinations of the two land used development scenarios and two roadway networks. In order to make comparisons between the existing network and the potential networks, a "no build" scenario, which assumed that no new roads will be built within the study area except for those already scheduled for completion, was also assessed.

The roadway network proposed in the Long Range Plan is the result of various network analyses, comparing the various combinations of roadway networks and land use scenarios. Consistently with the Maricopa County Comprehensive Plan, a corridor development pattern is assumed in the northeast valley.

## **RECOMMENDED LONG RANGE PLAN**

The recommended long range transportation plan for the *Northeast Valley Area Transportation Study* consists of:

- a set of goals and policies to guide the development of the transportation system in the Northeast Valley,
- a functional classification map to guide road network development,
- a transit improvements map to guide the provision of transit related improvement, and
- a map of existing and proposed non-motorized pathways to provide specific guidance for developing non-motorized networks.

## **Goals and Policies**

A set of transportation goals and policies has been developed for the Northeast Valley. The policies fall under three broad transportation categories: roadway planning, non-motorized travelways, and natural and cultural resource protection. It is the intention that further development in the Northeast Valley's transportation system adhere to these goals and policies. These goals were developed from review of prior plans including the *New River Land Use Plan* (1992), and the *County Wide*

*Comprehensive Plan Goals, Policies, and Standards* (1993). These were supplemented by public comments and a survey of area households conducted in 1995. The following defines the specific goals and policies.

**Goal 1. ROADWAY PLANNING:** Provide for future transportation corridors and roadways that minimize vehicle operating costs, are aesthetically pleasing to both users and non-users, provide flexibility to accommodate future technology, minimize costs to construct and maintain, insure adequate capacity for expected traffic demands, and protect safety for users.

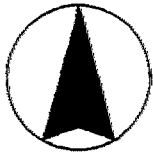
**Goal 2. NON-MOTORIZED TRAVELWAYS:** Provide public access that will reasonably accommodate non-motorized travel modes along roadways, including bike routes, equestrian trails and paths, and pedestrian walkways to open space within five miles of Northeast Valley residents' homes.

**Goal 3. NATURAL AND CULTURAL RESOURCE PROTECTION:** Encourage roadway and non-motorized travelways developments which are compatible with natural and cultural features and which minimize adverse environmental impacts.

### **Recommended Roadway Network**

Figure ES-2 summarizes the roadway alignments of the recommended long range plan and shows the relationship of the new roads to the environmental influence areas within the study area. As shown in Figure ES-2, all new road alignments are located outside all strict environmental influence areas. The new roadway links in the Long Range Plan include:







- All internal streets for the Villages at Desert Hills master planned community.
- Widening of Carefree Highway and Desert Hills Drive.
- A north-south connection along the 39th Avenue Corridor between Honda Bow Road and New River Road, parallel to I-17.
- A north-south connection parallel to I-17 along the 43rd Avenue Corridor, connecting Pioneer Road to New River road on the west of I-17.
- A minor arterial roadway at 67th Avenue, following the New River Wash, from Carefree Highway to Honda Bow Road.
- An east-west connection along Old Haul Road, between Pioneer Road (43rd Avenue) and New River Road, west of I-17.
- Extension of Desert Hills Drive to connect with the Pioneer Road interchange.
- 27th Avenue north of New River Road.

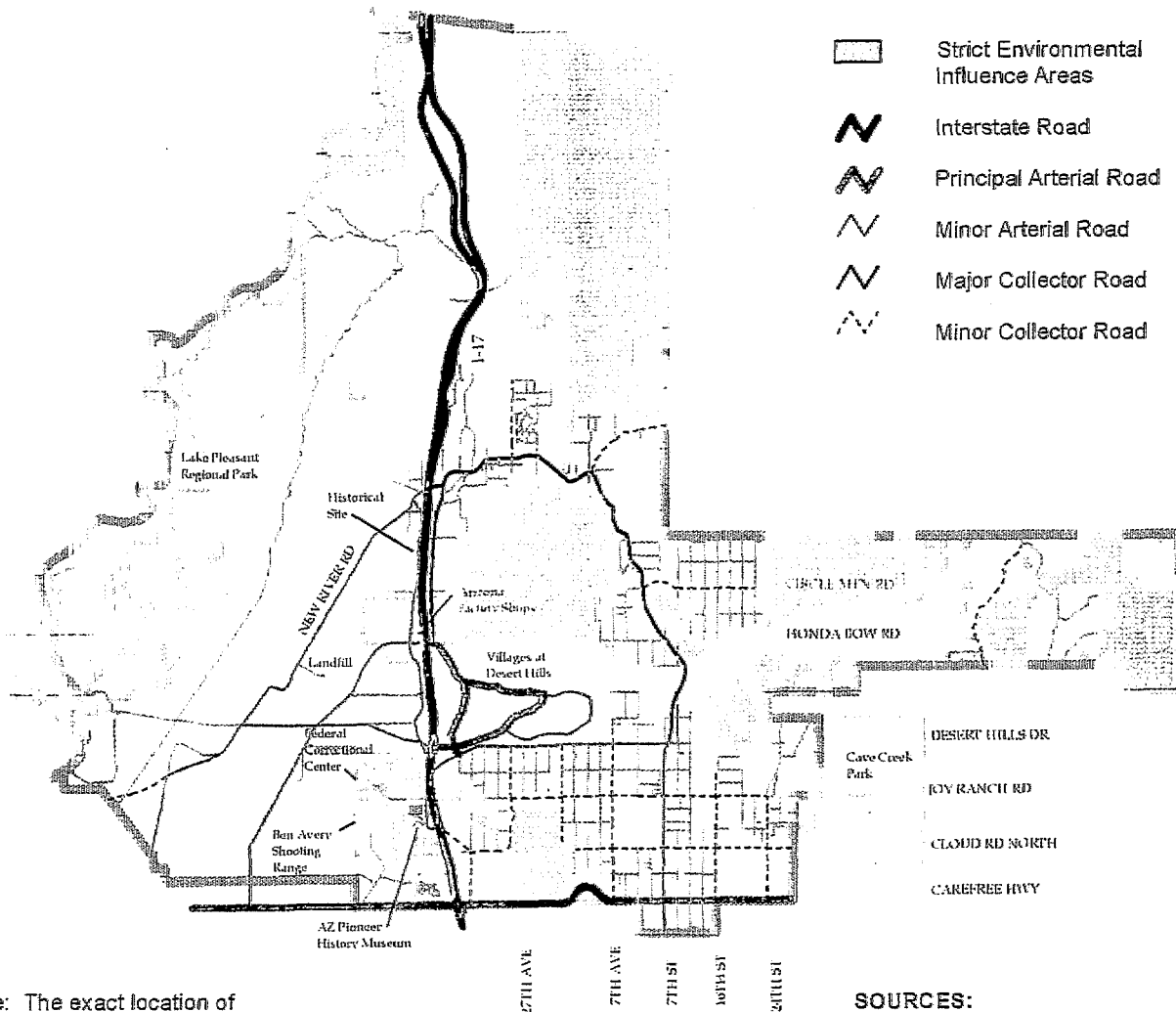


## Figure ES-2

### 2015 Recommended Roadway Network

#### LEGEND

-  Strict Environmental Influence Areas
-  Interstate Road
-  Principal Arterial Road
-  Minor Arterial Road
-  Major Collector Road
-  Minor Collector Road



Note: The exact location of new roadways is subject to future corridor studies and design concept reports. Locations shown here represent approximate corridors.

#### SOURCES:

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## Northeast Valley Area Transportation Study



- 7th Street south of Carefree Highway.
- Extension of Honda Bow Road west from the I-17 interchange to 43rd Avenue and connecting with the 67th Avenue roadway.
- Connection between 33rd Avenue and the Pioneer Road traffic interchange on I-17. A "T" intersection with the Desert Hills Drive extension should be developed a minimum of 400 feet east of the centerline of the I-17 northbound ramp junction with Pioneer Road.
- Connection between 43rd Avenue and I-17 at the Desert Hills Drive alignment.
- A new interchange on I-17 near Deadman Wash to serve the Villages at Desert Hills community.
- Widening of I-17 to three lanes in each direction from the proposed new traffic interchange to Carefree Highway.
- Improvements of interchanges at I-17/Honda Bow alignment (Desert Hills), Pioneer Road, and Carefree Highway.

The recommended roadway network consciously seeks to develop a system of north/south arterials on either side of I-17 to provide traffic relief and an alternate route when the freeway is closed. However, the arterials are not continuous due to hills on either side of the freeway, and the freeway speeds are significantly higher than the parallel routes. This means most traffic prefers to use I-17. This emphasizes the need for capacity improvements on I-17 and at the interchanges with I-17.

### **Transit Facilities**

The results of the Transportation Survey, performed by MCDOT, indicated that residents in the study area do not consider transit a high priority at this time. However, many felt the need for two types of transit service: park-and-ride lots and services for the elderly and handicapped.

Four locations are proposed for consideration as future sites for park-and-ride lots: I-17/Carefree Highway, I-17/Pioneer Road, the proposed traffic interchange near Deadman Wash, and I-17/Honda Bow Road (Desert Hills). These lots could support carpools, vanpools, and express bus service along I-17.

The Northeast Valley Study Area would probably be able to support two park-and-ride locations in the intermediate term. Therefore, it is recommended that only two sites be developed. A park-and-ride demand study may be useful in determining the location and timing for park-and-ride facilities along the I-17 corridor.

## Non-Motorized Facilities

The non-motorized trails map, presented in Figure ES-3, shows proposed locations for a network of trails with a potential variety of uses. The trail network is not intended to preclude more detailed designations or systems, but is intended to provide a location for existing and proposed major routes, much like the "arterial" designation for the roadway system. The scale of this study does not allow individual designations for proposed recreational hiking or commuter pedestrian routes, or for equestrian, mountain bike, or commuter bicycle use. The distinction between recreational and non-recreational uses should be part of a further study. The trails which are currently designated and known to be field-verified are distinguished from the trails proposed as a part of this study. Also, trails proposed to be within road rights-of-way are differentiated from trails proposed in recreational areas and public lands such as washes.

## CONCLUSION

The *Northeast Valley Area Transportation Study* presents a plan to guide development of this sector of the metropolitan area's transportation system. It presents a few new roadways and upgrades of existing routes which will be necessary to accommodate growth of the study area to a population of about 100,000. Because of the low density of anticipated development, most roadways can remain two-lanes wide. Carefree Highway, Desert Hills Drive, 7th Street and the internal arterials serving the Villages at Desert Hills master planned community will eventually require widening to four lanes.

There is a strong non-motorized travelways element to this plan. Horse-riding, biking and hiking are seen as viable travel options and an important element of the lifestyle of present and future residents. The plan adds a series of new non-motorized travelways which are the major routes tying together a network of local trails and routes.

Interstate 17 is the major transportation corridor running north and south through the middle of the study area. It will experience significant growth and will need to be widened to three lanes in each direction for part of its route. One new interchange and three interchange upgrades will be needed to serve this increased traffic. There is a significant potential for express bus service and high-occupancy vehicle usage along this route, and park-and-ride lots are proposed at four locations.

Activities to implement the *Northeast Valley Area Transportation Plan* are already underway. These include a multimodal corridor study of I-17 from Flagstaff to Phoenix, a scenic corridor study along Carefree Highway, and ongoing efforts to expand the area's trail network.







As development of the study area occurs, refinements to this plan will of course be required. For instance, master plan approvals or other actions may contain stipulations affecting the major street network. In addition, this plan should be reviewed and updated periodically.

Figure ES-3

## Non-Motorized Travelways

### LEGEND

#### Proposed Travelways

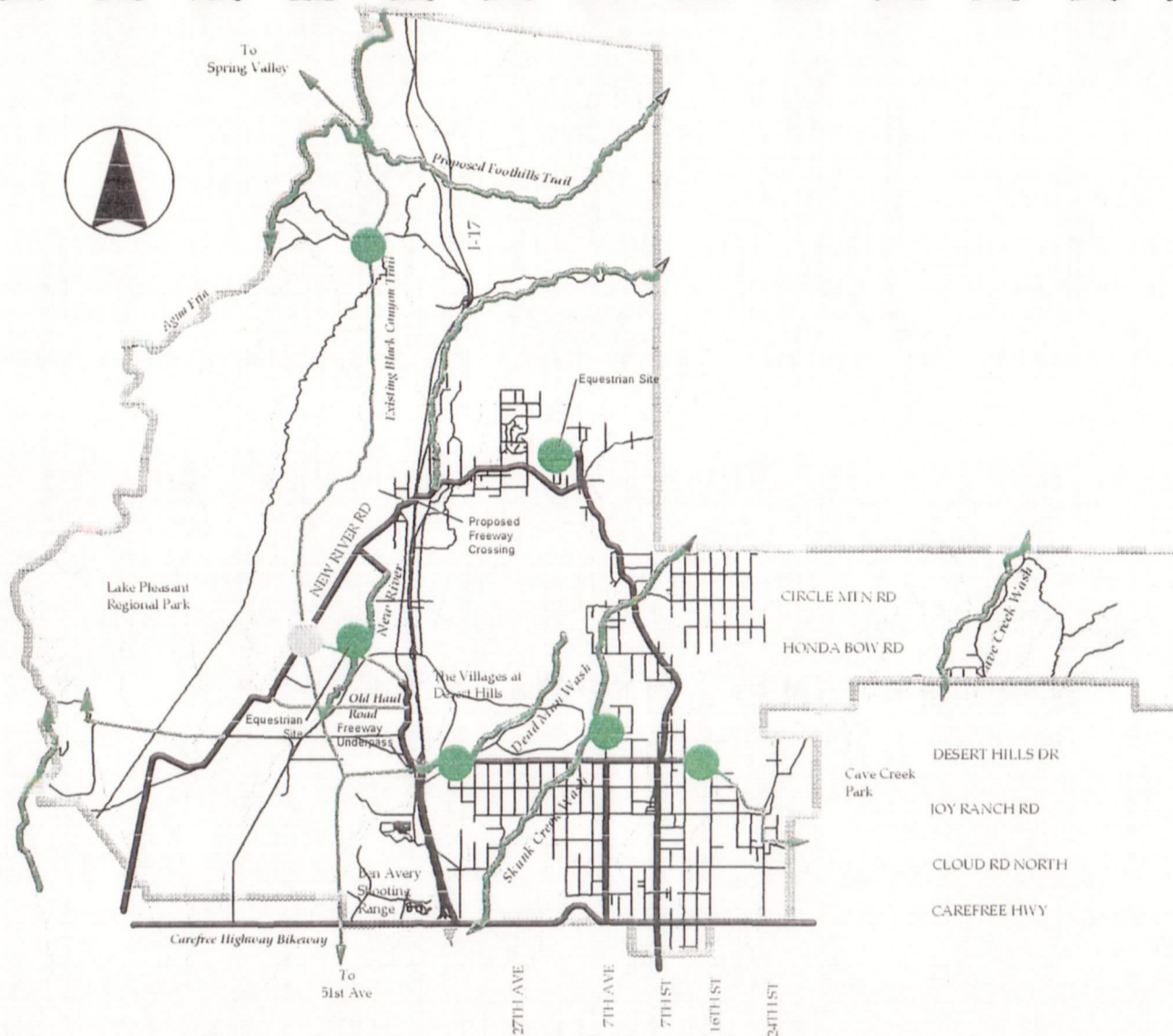
-  Along Roadways (Paved/Unpaved)  
Bike Lanes (2 sides)  
Walkways - 8' min.  
Equestrian Path - 1 side
-  In Washes  
Mtn Bikes, Hiking, Equestrian
-  Other Access  
Dirt Roads, Utility Corridors,  
Existing Trails
-  Trailheads (Proposed)
-  Trailheads (Existing)
-  Roads
-  Rivers/Washes

#### SOURCES:

Lee Engineering  
Logan Simpson & Dye

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## Northeast Valley Area Transportation Study

Other agencies with significant impact on the study area should look to the Northeast Valley Area Transportation Plan as a statement of intent on the part of area residents, and are urged to conform their development activities in the study area to be consistent with the transportation recommendation of this plan.

The *Northeast Valley Area Transportation Plan* is one way that Maricopa County can help current and future residents by guiding the development of an efficient, convenient, and aesthetically pleasant transportation infrastructure.

## CHAPTER 1

### INTRODUCTION

The New River/Desert Hills community is a rapidly growing area along the northern edge of the Salt River Valley. In 1990, the New River area, including the Desert Hills community, had 5,660 residents in 198 square miles. Since then, there has been considerable residential development; a factory outlet shopping center has opened along Interstate 17, and a large master-planned community of 5,600 acres has been approved.

This transportation plan encompasses the New River and Desert Hills communities. The transportation plan contains a ten-year action plan and a long range transportation plan for the study area.

The plan was developed by the Maricopa County Department of Transportation (MCDOT). A Transportation Advisory Committee (TAC) coordinated the planning effort. The TAC consisted of representatives from the Arizona Department of Transportation (ADOT), MCDOT, Maricopa Association of Governments Transportation Planning Office (MAGTPO), adjoining cities and towns, the State Land Department, and neighborhood associations. Lee Engineering and Logan Simpson and Dye were consultants to MCDOT in preparation of this plan.

In addition to the TAC, a public participation program provided information to the public and solicited public comment and input. The program was coordinated with the Maricopa County Comprehensive Plan process. Public meetings specifically relating to the Northeast Valley Area Transportation Plan were conducted on April 30 and June 27, 1996, in Desert Hills.

Prior to preparation of the draft plan report, a series of working papers were prepared which document progress on the plan. These and other significant reports are listed in the Bibliography. Chapter 2 documents the study area's existing land use and transportation conditions, including a description of the existing roadway network, transit services, and non-motorized travel modes.

Chapter 3 presents an analysis of the existing roadway system. This chapter quantifies the existing traffic levels of service, traffic accident history for the area, and other transportation related issues identified by residents' concerns.

Chapter 4 documents the study area's expected horizon year (20 to 25 years in the future) land use and development pattern assumptions. This chapter also summarizes the projected socioeconomic development of the study area. Travel models are discussed as well as the calibration of the travel model that was used in this study to project future traffic conditions.

Chapter 5 presents the long range plan for the Northeast Valley. The goals, policies and criteria for long range development in the study area are presented. These policies are established as a means of guiding development of the transportation system in the Northeast Valley. The long range plan is defined by a recommended roadway network, transit system, and non-motorized travelway

network. Capacity analyses are presented for the projected traffic volumes for the recommended long range roadway network.

Chapter 6 documents the prioritization of the long range transportation plan, actions to be taken in the next ten years, and a program of projects for the next five, ten, and twenty years.

Chapter 7 provides a brief discussion on the public participation program and concludes the report.



## CHAPTER 2

### EXISTING CONDITIONS

The study area, as illustrated on Figure 1, is located in the northern part of Maricopa County. It is bounded on the north and west by Yavapai County, on the east by the Tonto National Forest, and on the south by the city limits of Peoria, Phoenix, Cave Creek and Carefree. Lake Pleasant Regional Park lies along the western border.

#### Topography

The Northeast Area Transportation Study area is located along the northern edge of the Salt River Valley. The terrain within the planning area ranges from mountainous rock outcroppings in the northern and central portions, to old alluvium in the southern portions. The landscape is characterized by typical Sonoran Desert scenes with plants of the Palo Verde-Saguaro Community.

Figure 2 presents the major topographical features in the study area. Mountains border the planning area to the west, north, and east. The highest point in the study area is Continental Mountain, elevation 4,521 feet, which is located at the extreme eastern edge of the study area north of Carefree. Elephant Mountain reaches 3,926 feet. There are smaller hills scattered across the study area, including Apache Peak, elevation 3,219, and Daisy Mountain, elevation 3,176. These rugged hills break up the grid pattern of roads and offer barriers to urban development as well as transportation corridors. According to the *New River Land Use Plan*, about 35 percent of the area has slopes of more than 15 percent.

Between the hills and mountains are relatively flat alluvial deposits, ranging from 2,000 to 2,500 feet in elevation. Most existing and future development is on these deposits and a grid street network has developed in certain areas. These flat areas are broken by a series of drainages generally flowing from northeast to southwest.

The largest of these drainages are the Agua Fria River, New River, Skunk Creek, and Cave Creek. The Agua Fria River forms the western border with Yavapai County. The New River waterway and its subsidiary washes cover much of the area west of I-17 and run through the New River community. Skunk Creek runs through the Desert Hills community. Cave Creek runs through the extreme eastern part of the study area. All of these are intermittent streams. Low water crossings are typically closed several times per year. The washes, like the mountainous areas, offer opportunities for horse and pedestrian trails.

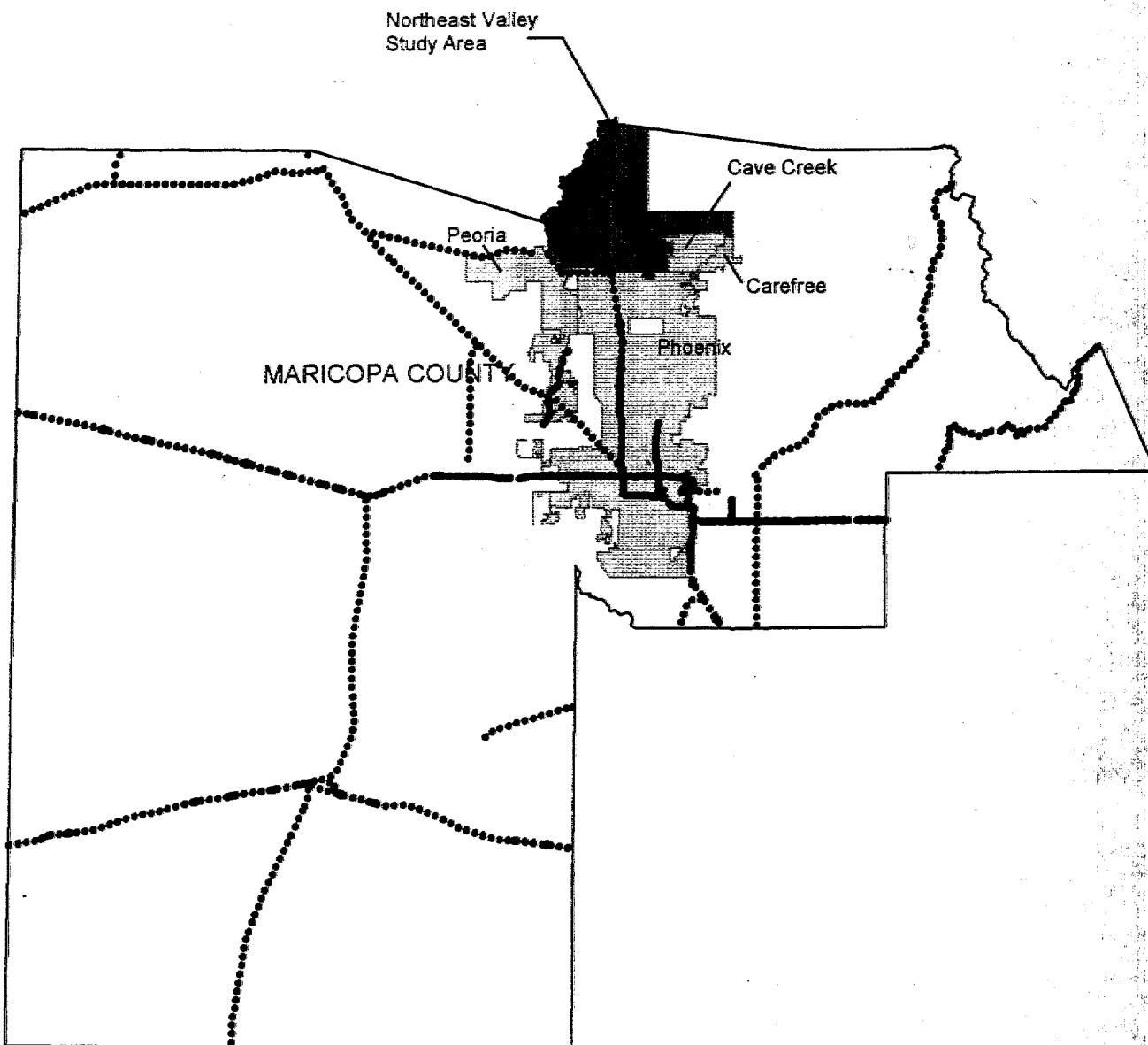
#### Environmental Influence Areas

Roadway development in the Northeast Valley Area will be governed in part by environmental conditions, such as topography and dedicated open spaces. Figure 3 presents those areas which are considered to have an impeding influence on roadway transportation. Conversely, these may be a supportive influence on trails, bikeways, and other types of non-motorized transportation. Two types



Figure 1

## Northeast Valley Study Area



**SOURCES:**

Lee Engineering

November, 1996



**LEE ENGINEERING**

LOGAN SIMPSON & DYE

Maricopa County Department of Transportation

## Northeast Valley Area Transportation Study



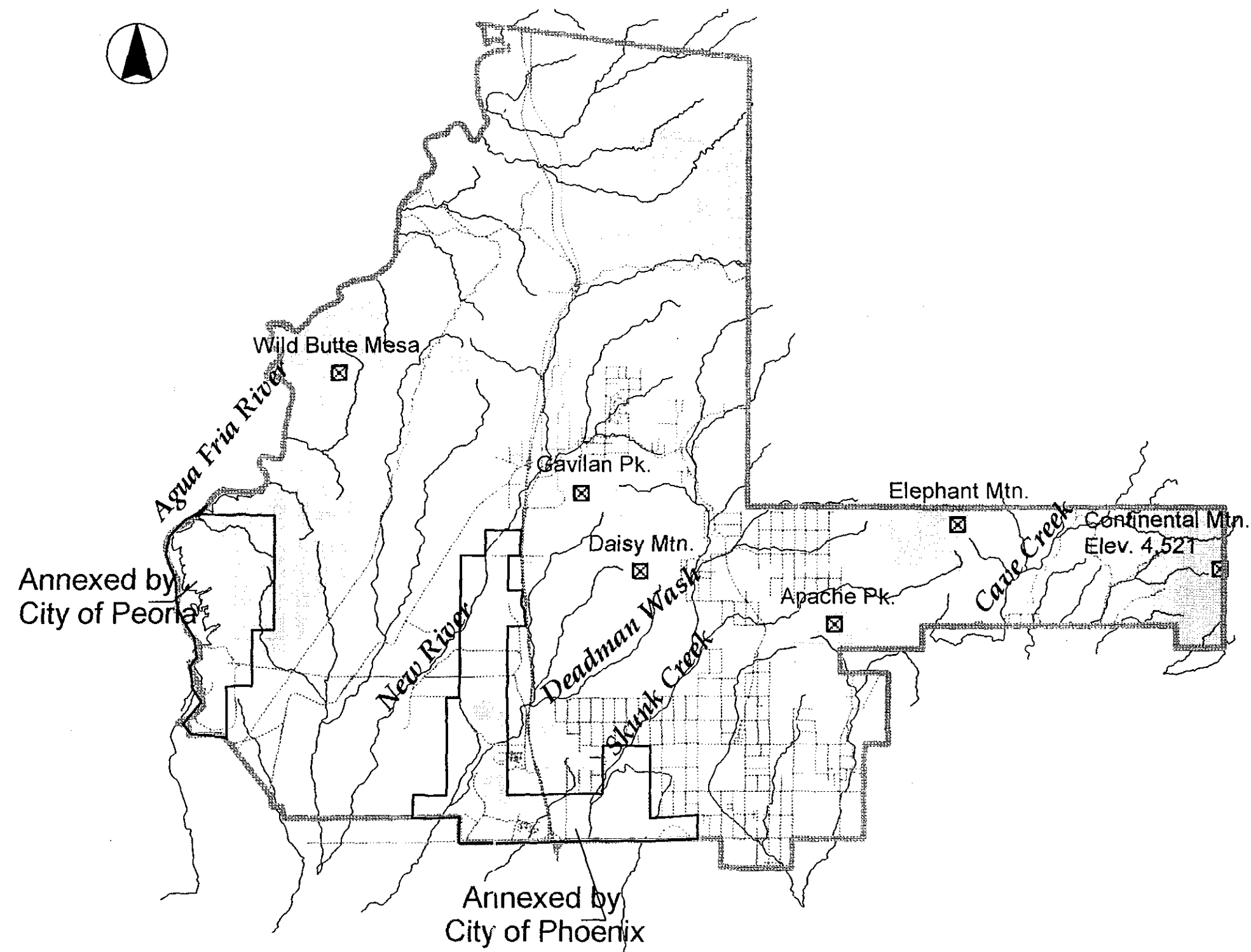





Figure 2

## Major Topographic Features

### LEGEND

-  Rivers/Washes
-  Roads
-  Mountainous Terrain

1 0 1 2 Miles



### SOURCES:

MCDOT Street Network

November, 1996

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Figure 3

## Environmental Influence Areas

### LEGEND



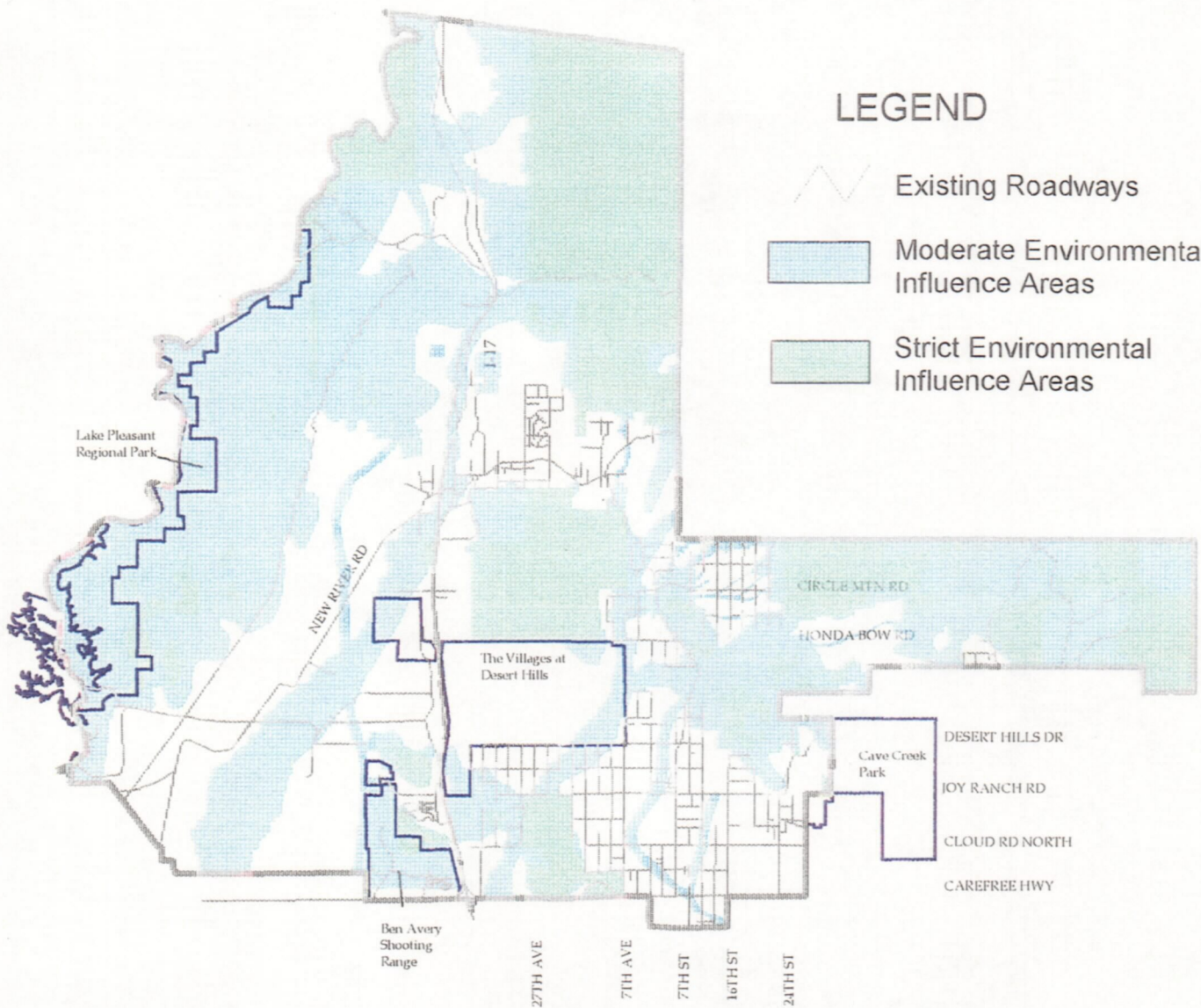
Existing Roadways



Moderate Environmental  
Influence Areas



Strict Environmental  
Influence Areas



### SOURCES:

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## Northeast Valley Area Transportation Study

of influences were mapped - Strict Environmental Influence Areas, which should strictly exclude any type of roadway development, and Moderate Environmental Influence Areas, which should affect or limit roadway development but do not necessarily restrict development. Influences are listed in Table 1.

**Table 1. Environmental Influences**

Influence	Categories Mapped	Map Source
<b>STRICT INFLUENCES</b>		
Existing Open Spaces	BLM Wilderness Areas	MAG Desert Spaces Plan, "Existing Parks and Open Spaces"
Visual	Visually Important Resources	MAG Desert Spaces Plan, "Visually Important Resources"
Historical Property	Federal Register Property	The SHPO, Phoenix location
<b>MODERATE INFLUENCES</b>		
Threatened & Endangered Species Habitats	Gray Wolf Bald Eagle Peregrine Falcon	U.S. Fish & Wildlife, "Endangered & Threatened Species of Arizona"
Flooding	Floodway and all Zones A	Maricopa County Flood Control, "Delineated Floodplains of North-Central Maricopa County"
Open Space Retention	Critical and Outstanding Public Lands Critical Private Lands Outstanding Private Lands	MAG Desert Spaces Plan, "Management Plan"
Steep Slopes	Slopes Over 15%	Maricopa County New River Plan, "Slopes"
Trails	Existing Trails Proposed Trails	Maricopa County Parks and Recreation, "Sun Circle Trail"
Existing Open Spaces	Regional Parks	MAG Desert Spaces Plan, "Existing Parks and Open Spaces"

The Strict Environmental Influence Areas include the Bureau of Land Management's designated Wilderness Areas, all Visually Important Resources as defined by MAG's *Desert Spaces Plan*, and Federal Register Historical Properties. The visually important resources are areas which are considered to be most scenic, such as highly visible mountainous terrain. In these areas, development of roadways would result in a degraded resource visible to most residents or travelers in the Northeast Valley.

The *Desert Spaces* report identifies lands that are most scenic and are seen by the greatest number of people. The *Desert Spaces Plan* defines three categories of visually important resource: important, moderately important, and most important. The conservation areas recommended by the *Desert Spaces* report include all three categories as well as other important open spaces.

The Moderate Environmental Influence Area is a combination of several other factors. The moderate influence area identifies the portions of the Northeast Valley Study Area which are influenced by the "100-year floodplain," existing and proposed trail systems, dedicated open space, and critical and outstanding public and private lands. Roadway development could influence habitat of the gray wolf, bald eagles, and peregrine falcon if it encroaches upon these species' historic habitats. These areas can affect the design and development of roadways and should be considered in designing a roadway network for the Northeast Valley Study Area. However, these areas do not necessarily restrict the construction of roadways.

### **Existing Development/Land Use**

Development in the Northeast Valley Area consists primarily of scattered single family residences built singly on lots of one acre or more, as shown on Figure 4. Many are on sites of five to ten acres. The residential areas shown on Figure 4 are not contiguously developed. Typically there are undeveloped lots or unplatted acreage between and around existing homes, leaving the potential for further low density development.

According to the *New River Area Land Use Plan*, there were only 399 residential households in the New River Planning Area in 1970. This area, which is nearly the same as the Northeast Valley Transportation Study area, grew to 643 residential households in 1980 and 1,863 residential households in 1990. The *New River Area Land Use Plan* projected growth to 2,019 residential households in 1995 and 2,377 in 2000, but the area appears to be growing at a faster rate, especially in the Desert Hills community. Since 1990, two residential subdivisions have been developed in the Desert Hills area.

East of I-17, there are several areas of scattered residential development. The New River community is surrounded by hills and lies between the New River and Skunk Creek washes. The Desert Hills community lies on relatively flat land between Carefree Highway and Desert Hills Drive. Other developments are located along Circle Mountain Road and at the base of Daisy Mountain. In the eastern section of the study area, north of Cave Creek near Spur Cross Road and Sierra Vista Road, some residences have recently been built.

A few scattered commercial operations serve the study area, including some development along Carefree Highway at 7th Street and along New River Road east of I-17. The only shopping center is the new Arizona Factory Outlet Shops on the west side of I-17 at the Honda Bow Road (Desert Hills) traffic interchange. This shopping center, which opened in August 1995, consists of 216,000 square feet of outlet shops with approval to expand to over 400,000 square feet.

The area between I-17 and Lake Pleasant Regional Park is mostly vacant land, but there are several significant uses, which serve as trip destinations. The Ben Avery Shooting Range and the Arizona Pioneer Museum are recreational destinations. The Federal Correctional Center is a destination for work trips. The New River Landfill is a residential waste site accessible from New River Road. It serves as a destination only on Fridays and Saturdays because the landfill is only open on these two days of the week.

Three major master planned communities have been proposed or approved for the study area. The Cahava Ranch area, located in the extreme eastern portion of the study area, is proposed as a very low density (5 acre lot) residential community in rugged desert terrain. In the large flat area north of Desert Hills Drive and east of I-17, the Villages at Desert Hills master planned community has been approved by Maricopa County. The Spur Cross Ranch master planned community is proposed to be located north of Cave Creek, bordering the Tonto National Forest.

The Villages at Desert Hills consists of approximately 4,600 acres east of I-17 and approximately 1,000 acres west of I-17 adjacent to the Desert Hills Interchange. The proposed project is a mixed-use residential project with support commercial and recreational facilities. According to *The Villages at Desert Hills Traffic Impact Study*, there are approximately 16,500 dwelling units planned in this project, plus commercial centers and recreational facilities, including golf courses.

The third master plan community is Spur Cross Ranch, located in the northeast extension of the study area, adjacent to the Tonto National Forest. This covers approximately 2,154 acres. In 1996, the developers, of the site proposed an amendment to the master plan, reducing planned residential density. Due to the uncertainty regarding the master plan, and the lack of recent development activity at or near Spur Cross Ranch, this study assumes very limited, low density residential growth in this area to the year 2015.

In summary, the study area represents an urban fringe area at the early stage of urbanization. Scattered residences have been built on large lots, which appeal to families seeking a rural or desert living space. Equestrian, pedestrian, and bicycle modes are popular for recreational travel. Planned communities and subdivisions are being constructed or proposed. The retail activity to support this residential land use has only begun. Very little industrial or major employment activity is in place today, but as the number of residences increases, proposals for such development can be expected.

### **Roadway Network**

An Interstate Highway corridor, I-17, runs north and south through the middle of the study area, with five full diamond interchanges in the planning area. Another significant roadway, Carefree Highway, runs east and west along the southern edge of the study area. Befitting a mountainous rural area, the local road network is mostly undeveloped and unconnected.

Interstate 17, Carefree Highway, and New River Road/7th Street are the only roads in the study area currently classified higher than local roads. Carefree Highway forms the southern boundary of the study area for most of its distance from Lake Pleasant Road to Cave Creek Road. New River Road



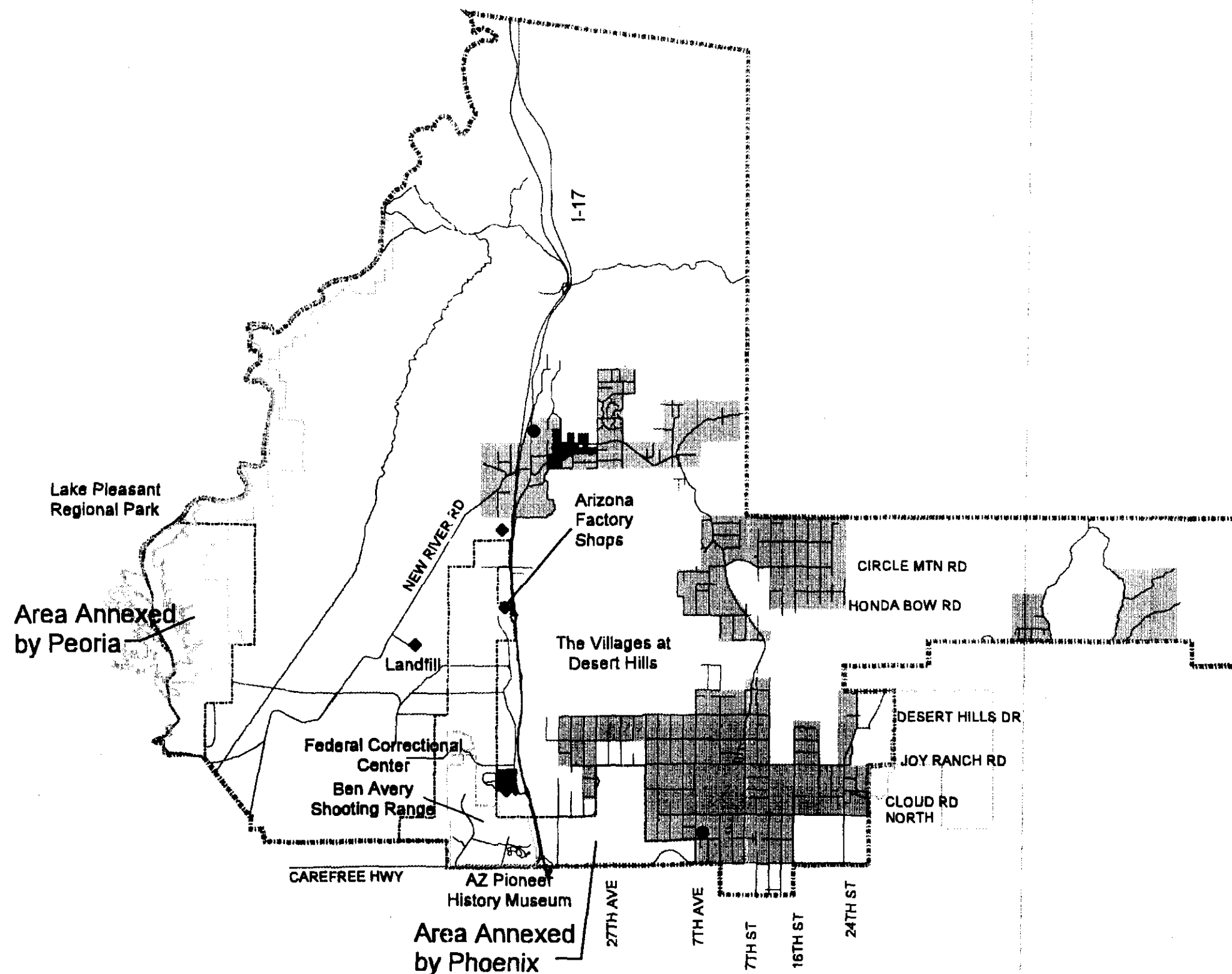








Figure 4

## Existing Development

### LEGEND

-  Roads
-  School
-  Commercial Area
-  Scattered Residential Development
-  Small Lot Residential Development

1 0 1 2 Miles



#### SOURCES:

Lee Engineering  
MCDOT Street Network  
MAG Land Use File

November, 1996

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Maricopa County Department of Transportation

## Northeast Valley Area Transportation Study

forms a giant inverted letter "U" from Lake Pleasant Road to 7th Street, crossing I-17 at the New River community.

In the Desert Hills community, local streets form a grid pattern with missing elements. A number of local streets feed into Circle Mountain Road, north of Apache Peak. This area has only one exit, Circle Mountain Road, which crosses several washes before connecting with New River Road. In the New River community, most local roads connect to New River Road. In other parts of the study area, rugged terrain or the lack of development has inhibited the growth of a local street network.

### **Current Traffic Volumes**

There is currently a minimal amount of traffic on study area streets, as shown in Table 2. Almost 80 percent of the existing traffic is on I-17 and represents a heavy intercity volume, moving through the study area. Over half of the local, non-interstate traffic in the study area is on Carefree Highway, the only existing non-freeway arterial in the study area.

Vehicle miles of travel on Table 2 was calculated from existing average daily traffic (ADT) counts taken recently by MCDOT and ADOT. For local roads in the study area with no existing counts, an average value of 100 vehicles per weekday was estimated.

**Table 2. 1995 Average Weekday Vehicle Miles of Travel in Northeast Valley Study Area**

	<b>Vehicle Miles of Travel (VMT)</b>	<b>Miles of Road</b>	<b>Avg. ADT per mile</b>
Freeway	410,887	*34	24,000
Arterial	65,600	9	7,300
Collector and Local	53,513	282	190
Total	530,000	325	1,721

\* One-way miles. ADT/mile is calculated on basis of 2-way miles.

Source: Lee Engineering

The current average weekday traffic on individual roadways is shown in Figure 5. Average daily traffic (ADT) volumes were obtained from several sources. Most of these traffic volumes were obtained from the MCDOT Traffic Counts Program. Only the most recent counts since 1990 were used.

ADT volumes indicate the average number of vehicles that travel over a roadway segment during a 24 hour period. For example, on an average weekday it is estimated that a total of 1,104 vehicles will travel on 7th Avenue between Cloud Road and Carefree Highway.

The current average weekday traffic, as shown in Figure 5, repeats the pattern apparent in Table 2. Traffic volumes on I-17 increase toward Phoenix; the highest volume is on I-17 at the south edge of the study area.

### **Transit Service**

There is currently no public transit service, either scheduled or demand responsive, in the study area. The need for transit service has been expressed by area residents and was mentioned by residents at both public meetings. Several Valley Metro bus routes terminate near Deer Valley Airport, about seven miles south of the planning area boundary. The Regional Public Transportation Authority offers a free ride-matching service at 262-7433.

The Villages at Desert Hills Master Plan specifies that a transit center will be built, and identifies several alternative sites near the I-17/Honda Bow (Desert Hills Interchange) and near the new I-10 interchange near Deadman Wash. The transit center at The Villages at Desert Hills will be implemented in phases as the project develops and ridership demand supports the need for the facility. The transit center will initially include bus shelters, bike racks, parking, landscaping and water fountains. As population and ridership demand increases, other amenities that could be provided include restrooms and bicycle lockers. The transit center could eventually integrate into a light rail or other mass transit system should one become a reality in the future. The architectural design of the transit center will adhere to principles of the Development Philosophy and Design Guidelines. The internal roadway network will include bus stops with bus bay pull-outs and benches and shading.

### **Non-Motorized Modes**

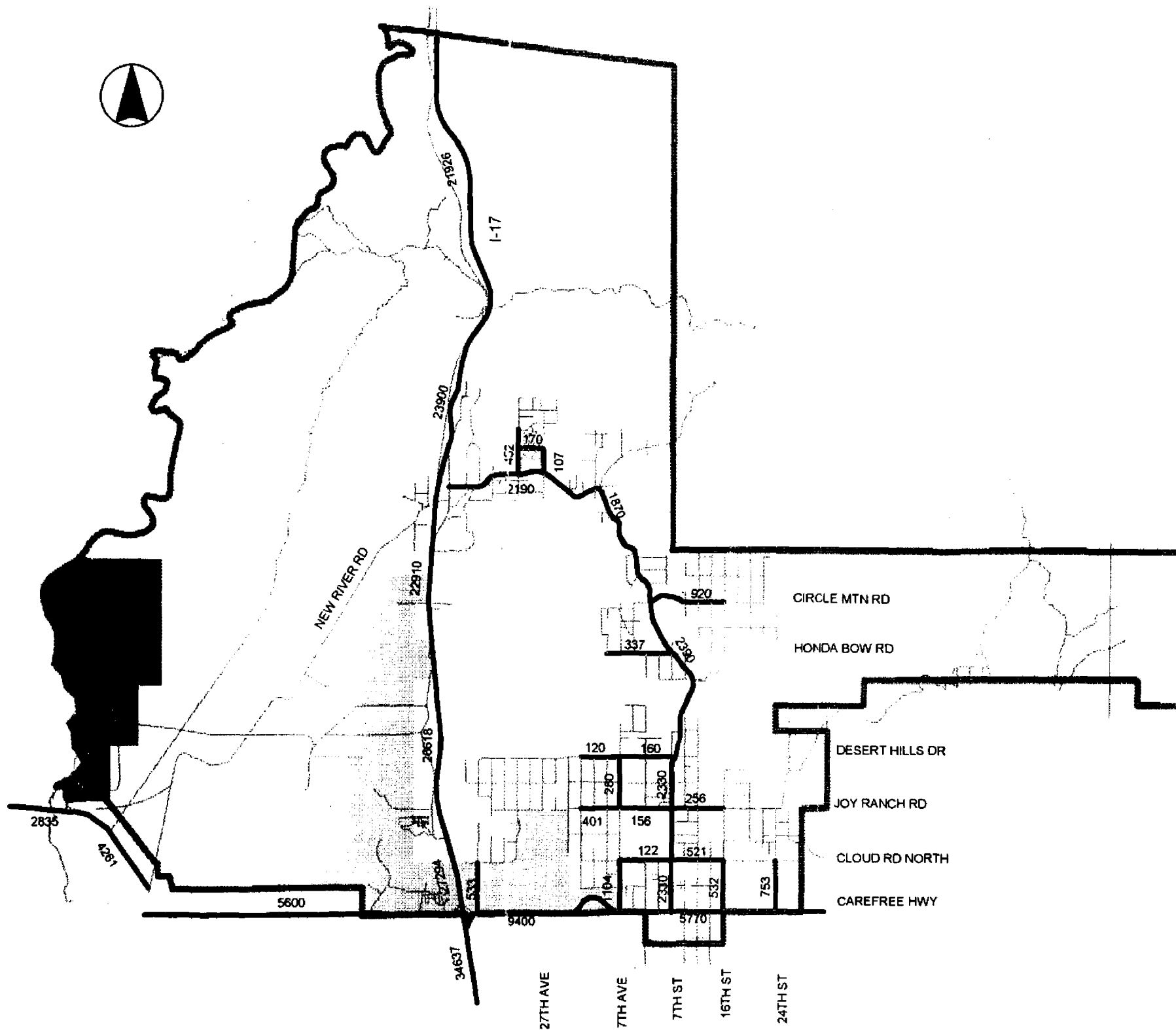
Horse riding, bicycling, and hiking are important to area residents as part of the rural lifestyle and recreational nature of the study area. There are several existing formal trails in the study area, including hiking trails near the picnic area in the Ben Avery Shooting Range and Recreational Area, and the Black Canyon Trail running north from the Ben Avery Park to the County Line. There is a horse loading and unloading facility where this trail crosses New River Road. Other trails have been dedicated in conjunction with the Villages at Desert Hills master planned community. There is a series of hiking trails in the Cave Creek Recreation Area adjacent to the study area. Informal trails can be found in many undeveloped parts of the study area.

Several major trails have been proposed. The Agua Fria Trail and the Foothills Trail are proposed in the *MAG Desert Spaces Plan*. The Cave Creek Wash Trail is proposed by the Maricopa County Parks and Recreation Department. Bike lanes will be constructed along Carefree Highway, east of I-17, when that road is widened in 1997/98.



Figure 5

# Current Average Weekday Traffic



## CHAPTER 3

### ANALYSIS OF EXISTING NETWORK

#### Capacity Analysis

Capacity analysis describes the existing roadway level of service at critical locations in the study area. Roadway volumes are compared with the capacity of roadway locations in order to estimate the amount of congestion.

For this study, capacity analyses were conducted for the major intersections in the study area, assuming average weekday PM peak hour conditions. Traffic volumes were obtained from MCDOT; ADOT; Kirkham, Michael and Associates; and from traffic counts taken by Lee Engineering in November, 1995. The PM peak hour is considered as the one-hour period between 4:00 and 6:00 pm experiencing the highest traffic volumes. Based on the available traffic counts, the PM peak hour occurs between 4:00 and 5:00 pm. It is possible that the PM peak period may be later than 6:00 pm, due to the longer commutes made by residents in the Northeast Valley. Since traffic counts are not available for time periods after 6:00 pm, the capacity analyses use the traffic counts for the peak period between 4:00 and 6:00 pm.

The PM peak hour analyses for this study were conducted utilizing the methodologies contained in Chapter 10, Unsignalized Intersections, of *Special Report 209, Highway Capacity Manual, 1994* (HCM), published by the Transportation Research Board. The methodology utilizes a gap acceptance model to determine the potential capacity for each critical movement of the intersection. The average delay for each critical movement is determined based on the potential capacity of the approach and the degree of saturation. Additionally, the total intersection delay is determined. The level of service criteria for two-way stop control unsignalized intersections are presented in Table 3.

**Table 3. Level of Service Criteria for Two Way Stop Control Unsignalized Intersections**

Level of Service	Average Total Delay (sec/veh)
A	≤5
B	>5 and ≤10
C	>10 and ≤20
D	>20 and ≤30
E	>30 and ≤45
F	>45

Source: Table 10-3, *Highway Capacity Manual*, Updated 1994.

The results of the unsignalized intersection capacity analyses are shown in Figure 6. The figure reports the worst critical movement level of service at each intersection during the PM peak period. All other movements operate at the same, or better, level of service. As shown in Figure 6, intersection operations at all locations assessed are favorable with all movements operating at level of service B or better.

- Capacity analyses were also conducted at the I-17 access ramps for the New River Road, Honda Bow (Desert Hills) Road, Pioneer Road, and Carefree Highway interchanges. The analyses were conducted utilizing the Highway Capacity Manual. The level of service is determined by the density of vehicles within the merge or diverge influence area. The average speed within the merge or diverge area is also predicted. The level of service criteria for ramps are presented in Table 4.

**Table 4. Level of Service Criteria for Ramp-Freeway Junction Areas of Influence**

Level of Service	Maximum Density (Primary Measure) (passenger car/mile/lane)	Minimum Speed (Secondary Measure) (MPH)
A	10	58
B	20	56
C	28	52
D	35	46
E	>35	42
F	a	a

a - demand flows exceed capacity criteria

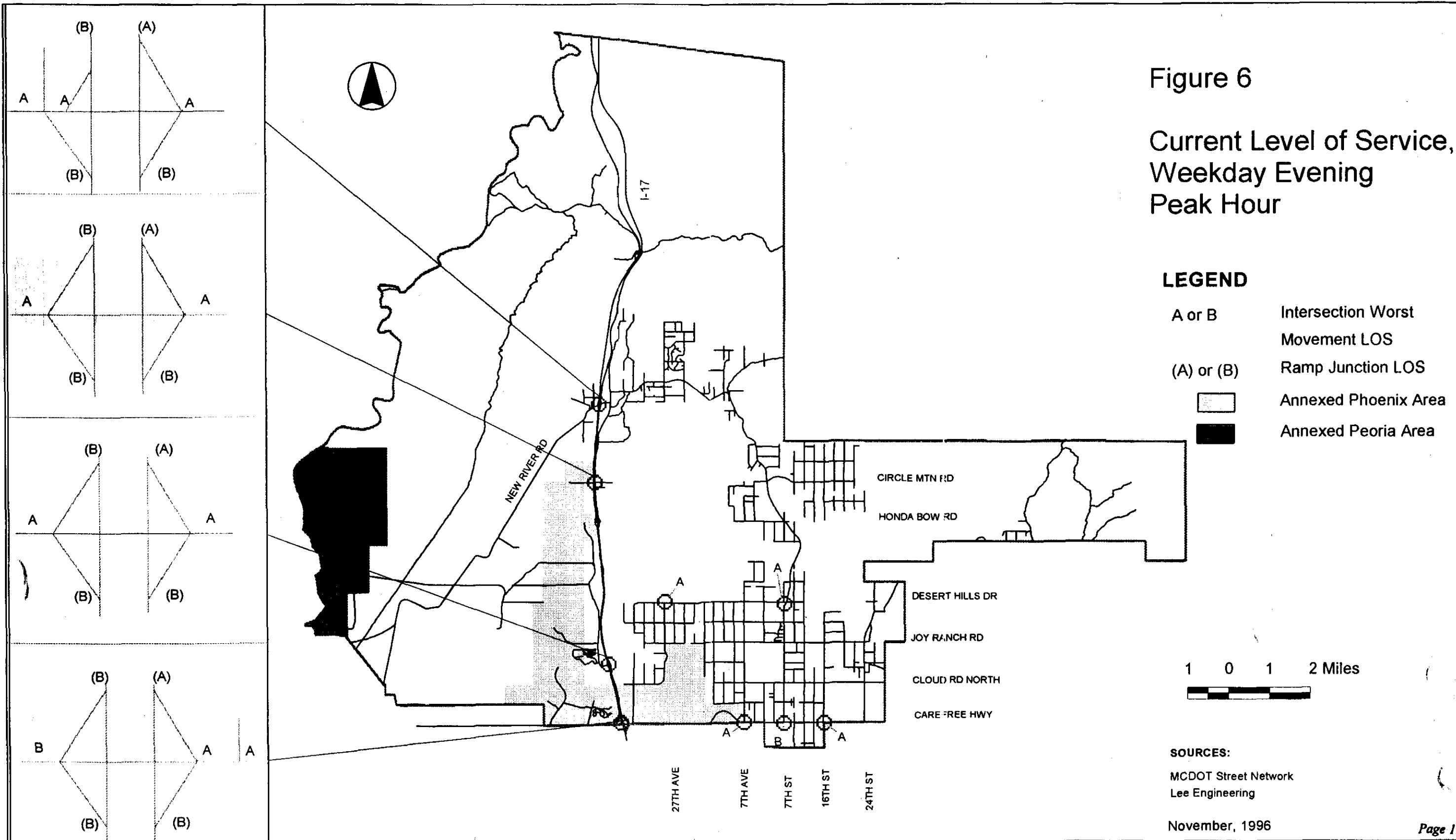
Source: Table 5-2, *Highway Capacity Manual*, Updated 1994.

The results of the analyses are also shown in Figure 6. As shown in the figure, traffic operations at all ramp junctions are favorable, with all off-ramp diverge areas, as well as the southbound on-ramp merge areas, operating at level of service B. The northbound on-ramp merge areas also operate favorably at level of service A.

AM peak hour capacity analysis was performed for many of the intersections within the Northeast Valley Study Area in a previous study by Kirkham, Michael and Associates, Inc. The results are documented in *The Villages at Desert Hills Traffic Impact Study*, December 1994. All intersections were found to operate at acceptable levels of service for the AM peak hour. In most cases, the PM peak hour traffic is the most critical. Therefore, PM peak hour traffic analysis will be used for future analysis.

### **Traffic Accidents**

A data file of traffic accidents for all roads in the study area was generated from accident data in the ADOT Accident Location Information and Surveillance System (ALISS). This database includes all



accidents in the ALISS from January 1, 1993 to June 30, 1994. There was a total of 221 accidents on I-17 and its ramp roadways during this 18 month period. An additional 55 accidents were recorded on other roads in the study area. A total of 14 fatalities and 114 non-fatal injuries were recorded on the I-17. Off-interstate accidents were clustered at several locations, especially along New River Road, north of Desert Hills Drive. No fatalities and 41 injuries occurred on other area roadways. The total accident rate for the I-17 within the study area was 0.9 recorded accidents per million vehicle miles. For all other roads in the study area, the rate was 1.3. This is similar to other areas.

### **Other Transportation System Performance Issues**

Several other non-quantified issues were identified relating to the performance of the transportation system. These are summarized here.

- The lack of bridges over many local washes isolates some areas after experiencing significant rainfall. Residents state, however, that this occurs rarely and for short time periods because the local washes are close to the source of the rainfall on nearby hills and mountains. Some residents feel that this is one of the trade-offs involved in a rural lifestyle and that bridge construction might have negative consequences.
- Dust from unpaved roads as traffic volumes increased was identified as a problem. Again there is concern that paving unpaved roads could lead to increased traffic flows and speeds.
- A lack of travel ways for bike riders, pedestrians and equestrians was often noted. In the absence of bike, pedestrian and equestrian facilities, these travelers are found on existing two lane roads, mixing with high speed vehicle travel.
- When I-17 is closed due to an accident or other incident, there are no alternate routes for traffic. Frontage roads would provide these routes. However, as described above for the Desert Hills interchange, two way frontage roads can complicate traffic movements, resulting in increased congestion.
- Parts of the study area that are available for development do not have road access. This is due to the rural, non-agricultural nature of the study area.
- Much of the study area is open range. Livestock on the right-of-way was identified by residents as a traffic hazard. Because many accidents involving livestock in remote area are not reported, accident statistics underestimate the frequency of this problem.
- The City of Phoenix *General Plan for Peripheral Areas C and D* identified Carefree Highway as a candidate scenic corridor from I-17 to 7th Street. Area residents expressed interest in preserving a scenic corridor on Carefree Highway throughout the study area, both east and west of I-17. This raises issues of access, landscaping, integration of non-motorized modes, and adjacent development.



## **CHAPTER 4**

### **DEVELOPMENT OF LONG RANGE PLAN**

To develop a long range plan, future conditions for the Northeast Valley Study Area were projected using a regional transportation modeling program. Lee Engineering used an in-house set of travel demand models to produce traffic projections. The models required two main input files: a socioeconomic data file and a roadway network file. These two files may be modified to reflect different conditions and years. Traffic estimates for the current year (1995) were made, using existing Maricopa Association of Governments (MAG) projections for the socioeconomic data, and the model was calibrated against 1995 traffic counts.

To properly represent the Northeast Valley, the study area was disaggregated into 59 small zones, called subarea traffic analysis zones (STAZs). Projected population and employment, as described below, represent the highest level of development that can reasonably be expected in the study area by the horizon year (2015). A high, but reasonable, estimate was necessary to properly determine the density and location of the arterial system, and to specify where and how much right-of-way will eventually be needed for transportation purposes.

Four alternatives were analyzed as potential future scenarios. These served as working tools in developing the recommended long range plan. The four main alternatives analyzed the various combinations of the two land used development scenarios (Dispersed and Corridor) and two roadway networks (Connected and Unconnected). In order to make comparisons between the existing network and the potential networks, a "no build" scenario, which assumed that no new roads will be built within the study area except for those already scheduled for completion, was also assessed.

#### **Future Development/Land Use Assumptions**

Two future land use development patterns were analyzed: the Dispersed development pattern and the Corridor development pattern. Both alternatives assumed the same population, households, and employment forecast totals. However, the distribution of these data differs in the two scenarios.

The Dispersed land use development pattern assumed that the residential population and households will be evenly dispersed over the entire study area, south of the Honda Bow Road alignment, according to the acreage of developable land. Employment centers were assumed to be concentrated along the I-17 and Carefree Highway corridors. Public employment was scattered throughout the study area proportionately to the population. The Dispersed development pattern for year 2015 was assumed for the No Build scenario.

The Corridor land use development pattern assumed that the residential population and households will not be evenly distributed over the study area, but will develop most heavily along the I-17 and Carefree Highway corridors, with remaining residential development decreasing in density away from these corridors. This scenario also assumed that employment will concentrate along the I-17 and

Carefree Highway corridors, while public employment, which represents schools, law enforcement and other public services, will be distributed according to population.

The Corridor land use pattern reflects the transportation corridors development scenario preferred in the Maricopa County Comprehensive Plan.

### **Long Range Socioeconomic Data**

The travel demand model requires a socioeconomic data file to define the characteristics of the region. These characteristics include such features as population, households, types of employment, household income, and developable areas. The Maricopa Association of Governments (MAG) has divided the entire planning region, which encompasses the Phoenix metropolitan area and surrounding communities, into 1272 traffic analysis zones (TAZs). The socioeconomic file contains a database describing the characteristics of each TAZ.

The Northeast Valley Study Area, according to MAG TAZs, was only defined by five TAZs. Due to the small number of TAZs in the study area, the Northeast Valley Study Area was divided into 59 smaller areas called subarea traffic analysis zones (STAZs). Twenty-three of these STAZs are within the Villages at Desert Hills. The remainder of the study area is divided into 36 STAZs, shown on Figure A-1 in Appendix 1. Dividing the area into STAZs allows for a much better definition of the area and enables a more detailed analysis to be conducted. The smaller zones allow the model to better simulate travel patterns. The data used for this study are presented in Appendix 1.

Two socioeconomic data files were prepared to describe the two potential horizon year development patterns: Dispersed alternative and Corridor alternative. Socioeconomic data were obtained from recent land use plans, including *The Villages at Desert Hills Traffic Impact Study*, the *New River Area Land Use Plan*, and *City of Phoenix Peripheral Areas C and D*. The long range socioeconomic projections assumed the highest level of development that can be reasonably expected for the Northeast Valley Study Area. Table 5 presents the socioeconomic data assumptions used for the three main areas of concern.

Long Range population and employment projections outside the study area represent expected year 2015 conditions, based on population and employment distributions by MAG. The City of Phoenix Areas C and D border the Northeast Valley Study Area on the south. Projections for year 2015 population and retail and other employment acreage were obtained from the City of Phoenix in December 1995. The 2015 MAG socioeconomic projections for the TAZs north of Jomax Road, within the Areas C and D, were modified to reflect the most recent City of Phoenix forecasts. These totals are presented in the last column of Table 5.

Honda Bow Road was selected as the northern border of urban type development based on the maximum sustainable size of the metropolitan region. The Villages of Desert Hills was assumed to follow those forecasts as in *The Villages of Desert Hills Traffic Impact Study*. It is assumed that the Villages of Desert Hills will only be 80 percent built out by the year 2015, which results in 13,235 total households. The areas north of Honda Bow Road were assumed to grow according to MAG



**Table 5. Socioeconomic Data Assumptions for Northeast Valley Transportation Study**

Socioeconomic Characteristic	Within NE Valley Study Area		Outside NE Valley Study Area
	Northeast Valley (Excluding the Villages at Desert Hills)	Villages at Desert Hills (Assumed 80 percent buildout conditions)	City of Phoenix Areas C and D (North of Jomax Road)
Residential Population	61,040	39,441	45,084
Residential Households	20,483	13,235	16,390
Other Employment	712	113	350
Public Employment	3,952	2,325	2,120
Retail Employment	3,600	620	1,164
Office Employment	1,880	2,855	2,167
Industrial Employment	677	125	213
Total Employment	10,821	6,038	6,014

projections (prepared in 1993) for this area, which is considerably less than the growth projected to the south. The total households north of Honda Bow Road were assumed to be 3,673.

For the area south of Honda Bow Road, full development was assumed. This was calculated based on the amount of developable land. Some areas within the Study Area are influenced by environmental conditions, such as mountainous terrain, floodplain, or other issues of environmental concern. Chapter 2 reported these areas as Strict Environmental Influence Areas, Moderate Environmental Influence Areas, and Non-Influence Areas. The non-influence areas were assumed to have no restrictions to development. Therefore, 80 percent of all non-influenced areas south of Honda Bow Road was assumed to be developable at one dwelling unit per acre, which resulted in 15,415 households. The remaining 20 percent of non-influenced areas was assumed to be utilized for right-of-way requirements and other facilities. The moderate environmental influence areas south of Honda Bow Road were assumed to be developed at one dwelling unit per ten acres, which resulted in 1,395 households. No development is assumed within the strict environmental influence areas. Thus, full development south of Honda Bow Road was calculated to be 16,810 households.

Total households for the Northeast Valley Study Area was assumed to be the sum of the Northeast Valley households and those for the Villages at Desert Hills, or 33,718 households. Households occupancy was assumed to be 2.98 persons per household, based on the New River Area Land Use Plan's projected persons per household. The total population for the study area equals 100,481 persons. Total employment for the study area was assumed to equal one half the number of households, or 16,859. This is between the current ratio of about .15 jobs per household in the study

area, and the regional average of about 1.3 jobs per household. These totals remained constant for the Dispersed and Corridor development alternatives.

### **Travel Models**

A simplified set of regional travel demand models for the Phoenix metropolitan region was used to forecast travel demand in the Northeast Valley Area. These models were developed from published documentation of the travel demand models developed by the Maricopa Association of Governments (MAG), and run through the MINUTP suite of microcomputer programs.

The MAG regional travel demand models are calibrated against travel surveys taken in this metropolitan region and are used by MAG, ADOT and others for freeway planning and design, air quality planning, regional and subregional street planning and other purposes. They are documented in *Task 8, Transportation Model Documentation*, prepared for Maricopa Association of Governments by Barton-Aschman Associates in November, 1994.

The models used for this study include the traditional submodels. The trip generation submodel calculates the number of person-trips made by purpose to and from each zone in the region. The trip distribution model assigns a trip destination to each trip origin, based on relative travel times and distances. The simplified mode split model converts person-trips to vehicle-trips. Vehicle-trips are aggregated and assigned to the road network in the trip assignment process, which adjusts travel speeds to reflect congestion levels and assigns trips by route according to travel speeds. An iterative process is needed to obtain a balance between travel speeds and travel volumes.

There are two simplifications incorporated into these models in order to reduce running time and computer memory requirements. One is that the models do not include a separate model to estimate transit and carpool use. Instead, transit usage is assumed to be five percent, and auto occupancy is 1.5 for nonwork trips and 1.1 for work trips. The second simplification is that the models incorporate a simpler traffic assignment process than the MAG models. Both models use capacity restraint to balance running speed and congestion levels on roadways. Neither of these simplifications introduces significant errors in estimating traffic volumes outside the urban core.

### **Calibration**

Before conducting future projections, it was important to calibrate the model, especially since the socioeconomic and network files had been altered to accommodate the small area transportation analysis zones (STAZs) and an expanded roadway network. To calibrate the model required that 1995 socioeconomic data be developed for the STAZs and a 1995 roadway network be created to more accurately reflect the current roadway conditions. The model was run using the 1995 data and compared against existing traffic counts on I-17, Carefree Highway, 7th Street, and other roadways adjacent to the study area. Factors within the model were adjusted until the model projections closely replicated the existing traffic counts.

## **No Build Scenario**

The No Build scenario is the yardstick for measuring alternative scenarios for future development of the Northeast Valley. The No Build scenario assumes that only the existing roadway network is used in the future and few additional roadways are constructed. For this study, the No Build scenario included existing roads, plus roadways in the adopted Master Plan for the Villages at Desert Hills. It also included programmed construction on the Carefree Highway. The No Build scenario did not include a new roadway in the Dynamite corridor, located about 1 to 2 miles south of Carefree Highway. Figure 7 shows the No Build roadway network.

Future traffic projections were made for the No Build scenario, assuming the Dispersed land use development pattern. The projected average weekday traffic volumes for the No Build scenario are presented in Figure 8. These volumes are significantly higher than existing traffic volumes. If growth continues without new roadways, the inevitable result will be higher volumes on existing roads. Interstate 17 is shown to carry 121,000 vehicles per day. Carefree Highway shows volumes of approximately 47,000 vehicles per day just east of I-17. The (Desert Hills) traffic interchange at Honda Bow Road carries about 34,000 vehicles per day in the No Build scenario. The No Build scenario is forecast to experience 2,252,056 total daily vehicle-miles of travel (VMT) and 96,998 total daily vehicle-hours of travel (VHT). These high VMTs and VHTs are mostly due to the fact that vehicles must take more circuitous routes to reach their destinations.

Capacity analyses were performed for many of the intersections within the study area for the No Build scenario. Figure 9 presents the levels of service at the intersections for the No Build scenario. Most congestion problems are on I-17 or at the I-17 interchanges.

## **Dispersed and Connected Roadway Networks**

For the long range traffic projects, two test roadway networks were created: the Connected Roadway Network and an Unconnected Roadway Network. These roadway alternatives were developed by expanding upon the existing roadway network in the Northeast Valley Study Area. The following summarizes the additions that were made to the existing network to create the two alternatives.

The following new roadway links were used in both the Connected and Unconnected Roadway Networks:

- All roadways associated with the Villages at Desert Hills master planned community. This includes all internal circulation streets, connection to the Pioneer Traffic Interchange (TI) and Desert Hills Drive, a new proposed TI, and connection to the Desert Hills TI.
- A connection from the Villages at Desert Hills to Desert Hills Drive at 27th Avenue, providing access to the new development from the south and reducing travel distance from Carefree Highway to the Villages at Desert Hills.



Figure 7

2015  
No Build Scenario  
Number of Lanes



**SOURCES:**  
Lee Engineering



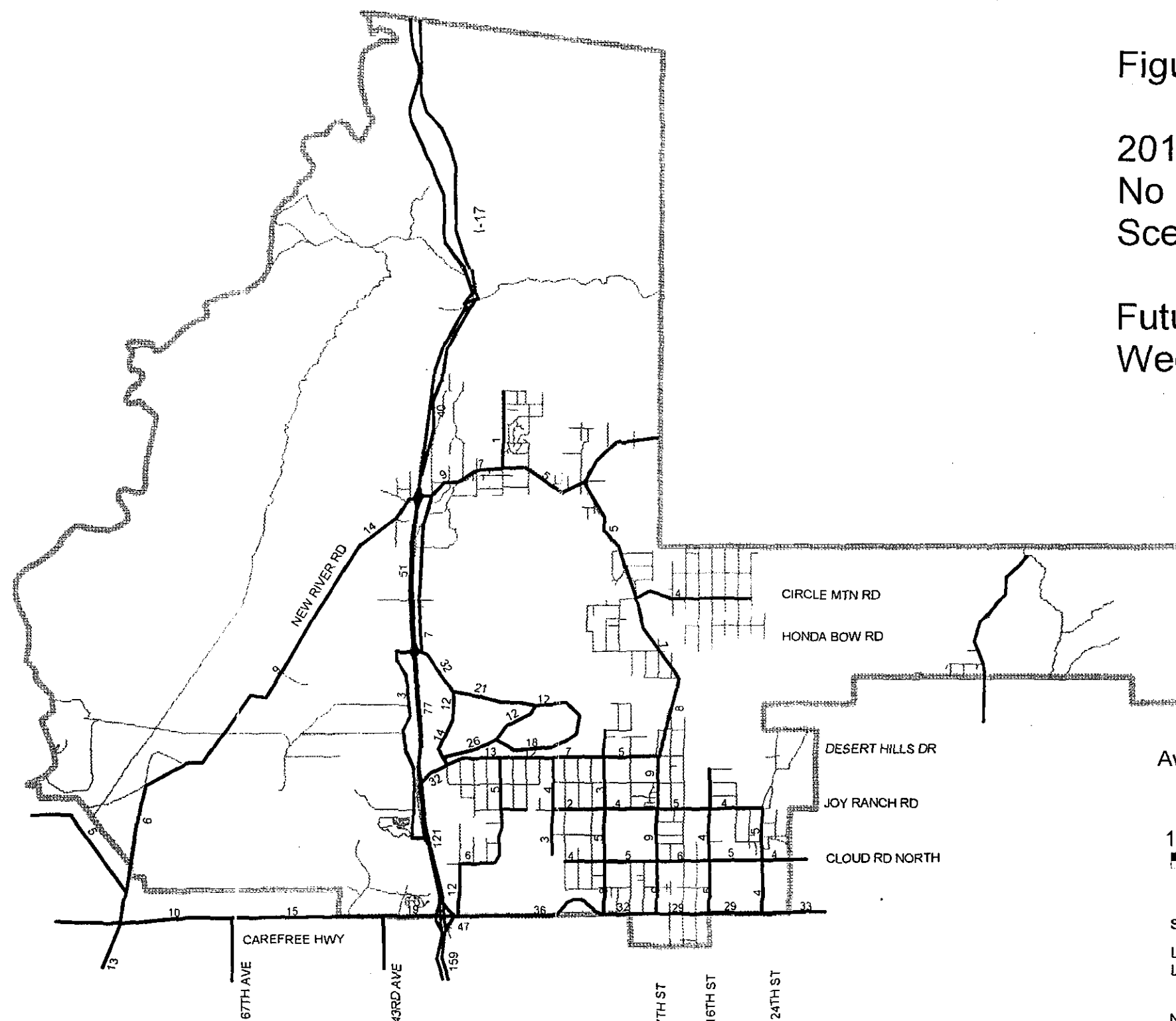


Figure 8

2015  
No Build  
Scenario

Future Average  
Weekday Traffic

Average Weekday Traffic in Thousands

1 0 1 2 Miles

SOURCES:

Lee Engineering  
Logan Simpson Dye

November, 1996

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Maricopa County Department of Transportation

Northeast Valley Area  
Transportation Study

Figure 9

2015  
No Build Scenario  
Level of Service

LEGEND

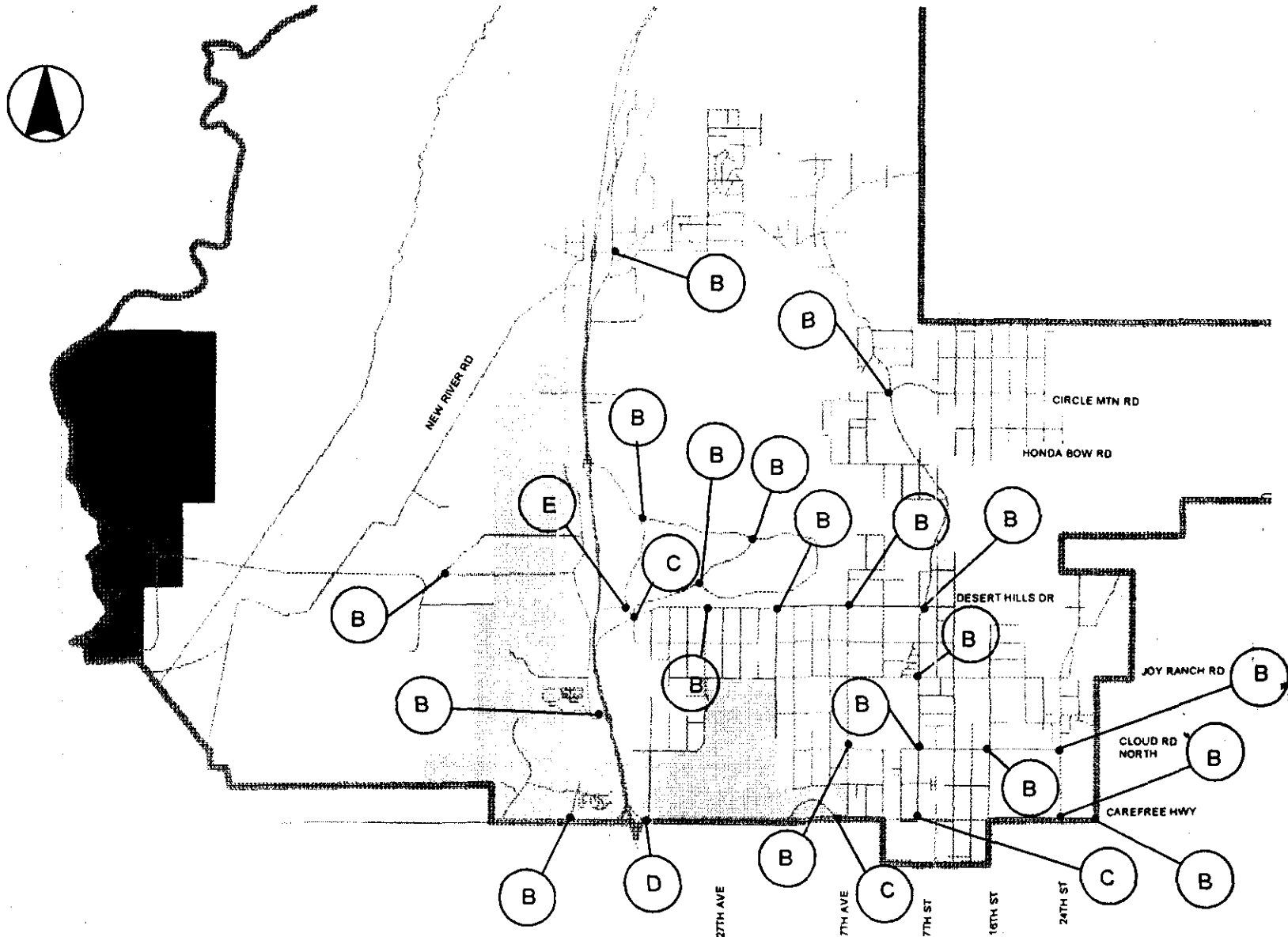
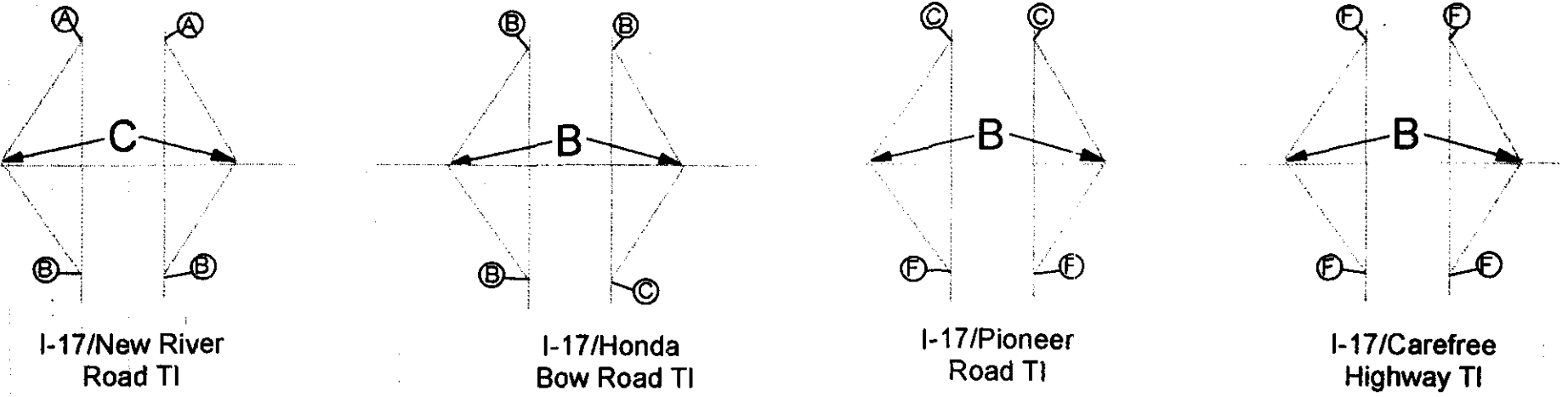
- Roads
- Annexed Phoenix Area
- Annexed Peoria Area
- Peak Hour Level of Service, Year 2015

Intersections analyzed with traffic signals and current number of lanes.



SOURCES:  
Lee Engineering  
Logan Simpson Dye

November, 1996



- An east-west connection from New River Road to the area north of the cities of Carefree and Cave Creek. This provides another access to this remote area, which is currently accessible only by Spur Cross Road winding through the residential area of Cave Creek with a low level crossing of Cave Creek Wash.
- Extension of 7th Street, south of Carefree Highway.
- Completion of the one-mile grid pattern in the Desert Hills community. Joy Ranch Road is completed across Skunk Creek.
- A connection between the Pioneer TI and Cloud Road at 33rd Avenue.
- Extension of 27th Avenue north from New River to Table Mesa Road.
- An extension of roadway, west of I-17, from the Desert Hills TI along Honda Bow Road alignment.
- Extension of Desert Hills Drive from approximately two miles west of I-17 from the proposed TI for the Villages at Desert Hills.
- A north-south connection between Carefree Highway at 51st Avenue and the extension of Desert Hills Drive, to the west of I-17.
- A north-south roadway, parallel to I-17, connecting the Honda Bow Road extension and the Desert Hills Drive extension on the west side of I-17. This serves developable land west of I-17.
- Carefree Highway is assumed to be developed as a six lane major arterial by year 2015.
- I-17 is assumed to remain a four lane freeway.
- The Dynamite Expressway, which will be a main east-west corridor located three miles south of Carefree Highway, is also assumed to be completed by the year 2015 as a four lane expressway.

The Connected Roadway Network also contains some additional roadway links. These include:

- An east-west connection from the Villages at Desert Hills internal street network to New River Road.
- Extension of 7th Avenue north to intersect with the east-west connection between the Village at Desert Hills and New River Road.
- Further extension of Desert Hills road, west of I-17, to connect with New River Road.



- A northeast-southwest connection between the Desert Hills TI and 23rd Avenue, running between Gavilan Peak and Daisy Mountain. This connects to a stub alignment in the Villages at Desert Hills master plan.
- Realignment of New River Road, within New River community, to eliminate existing offset of intersections with Frontage Road.

### **Development of Recommended Network**

The roadway network proposed in the Long Range Plan is the result of various network analyses, comparing alternate roadway networks and land use scenarios. There were four main alternatives for future year conditions in the Northeast Valley Study Area. The four alternatives were defined as follows:

- Alternative 1: Dispersed Socioeconomic Data and Connected Roadway Network
- Alternative 2: Dispersed Socioeconomic Data and Unconnected Roadway Network
- Alternative 3: Corridor Socioeconomic Data and Connected Roadway Network
- Alternative 4: Corridor Socioeconomic Data and Unconnected Roadway Network

These alternatives made up every combination of the two land use development scenarios (Dispersed and Corridor), as discussed previously, and two roadway networks (Connected and Unconnected). The connected roadway network included many new roadways in the study area which offered connections through the study area and to the surrounding communities. The Unconnected roadway network did not include many of these routes.

The four alternatives were compared to the No Build scenario to determine the beneficial elements of each plan. The total daily vehicle-miles of travel (VMT) and total vehicle-hours of travel (VHT) for each alternative provided an overall measure of the amount of traffic generated in each case. There was very little difference between the overall VMT and VHT among the four alternatives. However, all of the alternatives resulted in a decrease in VMT by 6 to 8 percent and a decrease in VHT by 30 to 35 percent, as compared to the No Build alternative. The VMTs for the Corridor alternatives were found to be slightly less than those for the Dispersed alternatives. The Corridor land use development scenario was assumed for the Long Range Plan.

A comparison of the project costs indicated that the Connected roadway networks were higher in cost than the Unconnected networks, as expected. All alternatives had a benefit/cost ratio greater than 1.0, so the decision of which alternative was most desirable could be made on the grounds of total benefits and meeting other goals. The Recommended network had the highest total benefits of the alternatives tested, and was in the middle of the alternatives when ranked by total cost.

The Recommended network includes some new roads with other purposes than strictly reducing travel times, such as alternate north-south arterial connections east and west of I-17. A number of new roadways in the Connected alternative did not prove to carry much traffic or have high benefits. These were dropped from the recommended network.



Table 6 summarizes the critical results of the alternatives tested.

**Table 6: Summary of Alternative Long Range Roadway Networks**

Variable	Roadway Alternative					
	No Build	Dispersed Connected	Dispersed Unconnected	Corridor Connected	Corridor Unconnected	Recommended Network
Projected Vehicle Miles of Travel	2,252,056	2,122,448	2,135,521	2,063,744	2,069,928	2,008,668
Projected Vehicle Hours of Travel	96,998	68,178	66,847	68,601	63,873	64,685
Total Construction Cost	\$13.87	\$73.55	\$53.72	\$73.55	\$53.72	\$63.89
Total Maintenance Cost of New Facilities	\$3.54	\$15.99	\$12.86	\$15.99	\$12.86	\$14.42
Yearly growth in ADT	86,103	79,622	80,276	76,687	76,996	73,933
TOTAL COSTS	\$25.90	\$104.54	\$77.58	\$102.04	\$76.08	\$89.81
TOTAL BENEFITS	\$0.00	\$634.36	\$656.96	\$647.46	\$743.13	\$749.98
BENEFIT/COST RATIO	0	6.1	8.5	6.3	9.8	8.4

Note: All costs shown in millions of constant 1996 dollars.



## CHAPTER 5

### LONG RANGE PLAN

This chapter documents the recommended long range transportation plan for the Northeast Valley Area Transportation Study. The long range transportation plan consists of:

- a set of policies to guide the development of the transportation system in the Northeast Valley,
- a functional classification map to guide road network development,
- a transit improvements map to guide the provision of transit related improvement, and
- a map of existing and proposed non-motorized pathways to provide specific guidance for developing non-motorized networks.

The following section presents the goals and policies of the long range plan. There are three general types of issues covered in the goals for the Northeast Valley. They concern planning roadways, non-motorized travelways, and natural and cultural resource protection. Policies have been developed for each of the three goals to define courses of action that may be taken to attain the desired goal. The long range plan has been developed with the purpose of meeting the goals of the Northeast Valley.

The Long Range Plan recommended roadway network is presented and analyzed for level of service. This network evolved from the analyses of four alternative networks and the analysis of the No Build network. The recommended network was developed from a review of these five cases and modified based on public input received during several public meetings. It was developed further from input by the Transportation Advisory Committee (TAC).

Recommendations for future development of non-motorized pathways, such as bike and equestrian trails, and opportunities for transit are also presented. These were also reviewed and modified according to input from the public and the TAC. The roadway network, trails, and transit discussed in this section define the recommended long range plan for the Northeast Valley study area.

#### Goals and Policies

A set of goals and policies has been developed for the Northeast Valley. The policies fall under three broad categories: roadway planning, non-motorized travelways, and natural and cultural resource protection. It is the intention that further development in the Northeast Valley's transportation system adhere to these goals and policies. These goals were developed from review of prior plans including the *New River Land Use Plan* (1992), and the *County Wide Comprehensive Plan Goals, Policies, and Standards* (1993). These were supplemented by public comments and a survey of area households conducted in 1995. The following outlines the specific goals and policies. A discussion is provided which details how the recommended long range plan attains the goals of the Northeast Valley.

## *Goals and Policies Defined*

**Goal 1. ROADWAY PLANNING:** Provide for future transportation corridors and roadways that minimize vehicle operating costs, are aesthetically pleasing to both users and non-users, provide flexibility to accommodate future technology, minimize costs to construct and maintain, insure adequate capacity for expected traffic demands, and protect safety for users.

- Policy 1: measure costs and benefits of each proposed improvement.
- Policy 2: encourage public/private partnerships in development of roadways.
- Policy 3: new developments of any size pay their own way and their share of regional traffic and transportation impacts.
- Policy 4: minimize vehicle hours of travel, pollutants, and congested intersections.
- Policy 5: delineate and protect dedication of right-of-way for roadways as per current policy, and for equestrian trails and bike lanes in undeveloped areas. Provide adequate cross sections for trails.
- Policy 6: existing major roadways should maintain their present alignment, whether they are curvilinear or follow the existing grid system.
- Policy 7: existing and planned roadways should have wide unpaved shoulders rather than curbs, gutters and sidewalks.
- Policy 8: the configuration, material, and maintenance of existing and proposed minor and local roads reflect the local community or neighborhood preferences.
- Policy 9: proposed roadways should be consistent with surrounding communities' and other jurisdictions Transportation Master Plans, the State Transportation Plan, and MAG's Northwest Valley Study.
- Policy 10: improve capacity on Carefree Highway to a 4-lane, divided roadway, with provisions for expansion to a 6-lane right-of-way.
- Policy 11: develop criteria for scenic corridor status for Carefree Highway in conjunction with City of Phoenix.
- Policy 12: connect Desert Hills Road to I-17.
- Policy 13: encourage ADOT to improve the I-17/Honda Bow Road (Desert Hills) interchange.
- Policy 14: work with ADOT to clearly identify the number, location and configuration of traffic interchanges servicing new developments in the I-17 corridor.
- Policy 15: work with ADOT to plan for the I-17 corridor as an effective priority corridor of statewide significance as identified in the Arizona State Transportation Plan.
- Policy 16: designate a relief route between Pioneer and Desert Hills Interchanges.
- Policy 17: designate bridges over major washes or provide culverts under roadways that intersect major washes, or keep low water crossings, at the neighborhood's discretion.
- Policy 18: encourage the extension of regional public transit services to new developments in this area per Valley Metro guidelines.
- Policy 19: encourage bus turnouts, park and ride facilities, and other intermodal connectivity points accessible to all developments.
- Policy 20: encourage school bus turnouts on arterials.
- Policy 21: preserve nighttime rural character by minimizing lighting of roadways.

**Goal 2. NON-MOTORIZED TRAVELWAYS:** Provide public access that will reasonably accommodate non-motorized travel modes along roadways, including bike routes, equestrian trails and paths, and pedestrian walkways to open space within five miles of Northeast Valley residents' homes.

- Policy 1: delineate and protect dedication of bike lanes along major roadways, as per current Maricopa County policy.
- Policy 2: delineate and protect dedication of equestrian trails along existing and planned major roadways.
- Policy 3: encourage and participate in multi-jurisdictional coordination for equestrian trails.
- Policy 4: encourage equestrian trails in private developments -- review in development plans.
- Policy 5: encourage and require bikeways and pedestrian walkways within school service area -- review in development plans.
- Policy 6: encourage equestrian routes along major roadways when safe or create a separate system of paths.
- Policy 7: link Lake Pleasant and Cave Creek Park with a non-motorized travelway system.
- Policy 8: designate New River, Deadman's Wash, Agua Fria River, Cave Creek Wash, and Skunk Creek Wash as hiking and equestrian travelways systems. Endorse the MAG *Desert Spaces Plan*, which identifies washes as trails.
- Policy 9: delineate and protect existing and planned horse trails along the Black Canyon trail, and the utility corridor connection from the existing trail head to Lake Pleasant.
- Policy 10: protect Upper Sonoran Desert areas that serve as links between the Hieroglyphic Mountains and the New River Mountains.
- Policy 11: designate and plan for recreational, commercial, and commuter pedestrian routes between communities.

**Goal 3. NATURAL AND CULTURAL RESOURCE PROTECTION:** Encourage roadway and non-motorized travelways developments which are compatible with natural and cultural features and which minimize adverse environmental impacts.

- Policy 1: plan roadways or travelways outside of strict environmental influences areas, as designated on Figure 3.
- Policy 2: mitigate major roadway construction in moderate environmental influences areas, as designated on Figure 3.
- Policy 3: require a SHPO clearance letter for all roadway construction, as per current policy.
- Policy 4: support and intensify preservation practices such as salvage, revegetation with native species, and seeding in the Palo Verde-Saguaro Community.
- Policy 5: maintain four-wheel drive public access to Tonto National Forest via Table Mountain Road, Fig Springs Road, and Spur Cross Road .

#### *Attainment of Goals and Policies in Long Range Plan*

**Goal 1: Roadway Planning.** It is the policy in the Northeast Valley area to encourage public/private partnerships in the development of roadways. New developments of any size shall pay their share for

roadways within the development. Traffic impacts to the regional system shall be measured and mitigated consistent with the procedures for traffic impact studies in the *MCDOT Roadway Design Manual*.

Rights-of-way for roadways shall be delineated and protected appropriately. Current MCDOT policy designates right-of-way on a quarter section grid, unless there is a master planned community. A grid pattern is not appropriate for the New River area where terrain is mountainous. Therefore, minor collector rights-of-way shall be designated along the routes in the Recommended network. This right-of-way will also include equestrian trails and bike trails/lanes in undeveloped areas.

Existing and planned roadways should have wide unpaved shoulders rather than curbs, gutters, and sidewalks. Planned roadways in the Northeast Valley shall be based on rural cross-sections defined in the *MCDOT Roadway Design Manual*. One exception to the cross-section design is that the additional 5 feet of pavement width (typically for exclusive bike lanes) is not required in all cases. In general, residents of the area felt that recreational trails (for bikes, equestrian, and pedestrians) should be kept separate from the road system. Bike lanes should be provided on major roadways.

The Carefree Highway shall be widened (from the current 2-lane undivided roadway) to a 4-lane divided roadway from I-17 to Cave Creek Road, beyond the eastern boundary of the study area. In addition, the Carefree Highway shall be designated as a scenic corridor as recommended by the Carefree Highway Scenic Corridor Study.

As development increases, improvements will need to be made at the Desert Hills interchange and others. Communication with ADOT is important as the area develops. Data and priorities shall be made known to ADOT throughout the development of the Northeast Valley.

MCDOT shall work with ADOT to plan for the I-17 corridor as an effective priority corridor of statewide significance as identified in the Arizona State Transportation Plan. Maricopa County shall encourage major developers to work with ADOT to ensure conformance with the State Transportation Plan and to mitigate traffic impacts from their development on the freeway system.

New and existing roadways shall have drainage facilities where they intersect major washes. The particular drainage structure (culvert, bridge, low water crossing, etc.) shall be responsive to the needs and wishes of the community, including concepts like equestrian passages through culverts. However, the County's commitment to protect the health, safety, and welfare of the public shall be upheld.

Regional public transit services should be encouraged to service new developments. Given the low density of most of the development, this service is likely to be in the form of park-and-ride lots with express bus service to central Phoenix. Park-and-ride lots shall be planned for along I-17 at the following interchanges: Carefree Highway, Honda Bow Road (Desert Hills), the new proposed interchange near Deadman Wash, and Pioneer Road. Development at these interchanges may be required to provide spaces to be used for a park-and-ride facility, bus layover areas, and bus stop locations.

It is a policy of the Northeast Valley area to maintain its nighttime rural character. This will be done by following standards to be adopted and published by MCDOT. These standards will establish minimum safe lighting requirements for the area.

Goal 2: Non-Motorized Travelways. Bike lanes shall be delineated and protected along the following existing and future major roadways. Existing major roadways are New River Road, the Carefree Highway, and 7th Street. Future major roadways are 7th Avenue and Desert Hills Drive.

Equestrian trails shall also be delineated and protected along these same major routes. Developers are encouraged to participate in multi-jurisdictional coordination for such trails. This includes, but is not limited to, identifying the jurisdictions, identifying the contact persons, and establishing a coordination process with all parties involved. Developers are also encouraged to plan for equestrian trails within their developments

In order to accommodate younger school children, developers are required to provide bikeways and walkways within elementary school service areas.

Lake Pleasant Regional Park and Cave Creek Park shall be linked by a non-motorized travelway system. Additionally, five of the areas rivers and washes shall be designated as a travelway system for hiking and equestrian trails. These five are: New River, Deadman Wash, Agua Fria River, Cave Creek Wash, and Skunk Creek Wash. The existing and planned horse trails along the Black Canyon trail and the utility corridor from the Black Canyon trailhead to Lake Pleasant shall be delineated and protected.

In order to preserve the upper Sonoran Desert, strict measures shall be enforced in this area that links the Hieroglyphic Mountains and the New River Mountains. It is preferred that no new roadways are proposed. However, roadways that are proposed must take extraordinary measures to mitigate any environmental damage that may be caused by the facility.

Goal 3: Natural and Cultural Resource Protection. Preservation practices such as salvage, revegetation with native species, and seeding shall be supported and intensified in the Palo Verde-Saguaro community.

Four-wheel drive access to the Tonto National Forest on roads designated as FR41, FR48, and FR53 shall be maintained.

### **Roadway Network**

The Recommended roadway network is shown on Figure 10. Figure 10 shows the recommended Long Range roadway network and the functional classification of the roads for the Northeast Valley study area. The classifications correspond to those set out in the MCDOT *Roadway Design Guide*. They are presented in Table 7. Interstate freeway is a separate roadway classification.









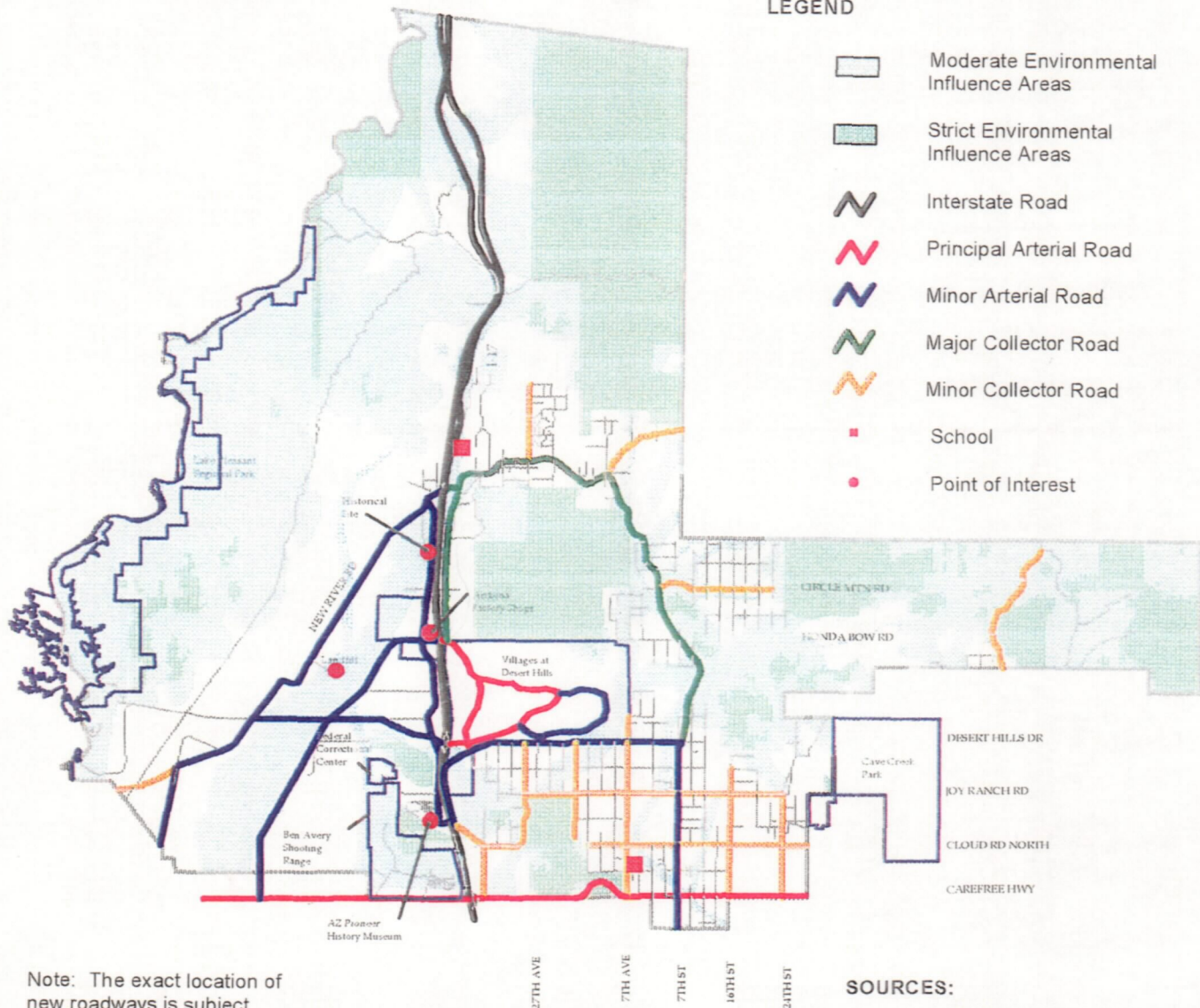


Figure 10

## 2015 Recommended Roadway Network

### LEGEND

-  Moderate Environmental Influence Areas
-  Strict Environmental Influence Areas
-  Interstate Road
-  Principal Arterial Road
-  Minor Arterial Road
-  Major Collector Road
-  Minor Collector Road
-  School
-  Point of Interest



Note: The exact location of new roadways is subject to future corridor studies and design concept reports. Locations shown here represent approximate corridors.

### SOURCES:

Lee Engineering  
Logan Simpson & Dye

November, 1996

Maricopa County Department of Transportation



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## Northeast Valley Area Transportation Study



**Table 7. Functional Classification of Roadways**

Urban Roadway Level of Service and Service Volumes							
Road Classification	Desired LOS	ADT/Lane	No. Thru Lanes	2-Way ADT Range	Pk. Hr./ ADT%	Max. Pk. Hr. Ln. Vol.	Right-of-way Widths
Local	A	350	2	50 - 700	15	60	50'
Minor Collector	B	2,500	2	500 - 5,000	12	360	60'
Major Collector	C	3,500	2	600 - 7,000	10	420	80'
Minor Arterial	C	5,500	4	6,000 - 22,000	8	530	110'
Principal Arterial	D	7,500	6	18,000 - 45,000	8	720	130'
Rural Roadway Level of Service and Service Volumes							
Road Classification	Desired LOS	ADT/Lane	No. Thru Lanes	2-Way ADT Range	Pk. Hr./ ADT%	Max. Pk. Hr. Ln. Vol.	Right-of-way Widths
Local	A	500	2	50 - 1,000	15	90	60'
Minor Collector	B	3,000	2	800 - 6,000	12	430	80'
Major Collector	B	4,000	2	1,000 - 8,000	10	480	110'
Minor Arterial	C	9,000	4	6,000 - 36,000	10	1,100	110'
Principal Arterial	C	10,000	4	10,000 - 40,000	10	1,200	130'

Source: American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 1990.

The information in Table 7 should be used in conjunction with other factors such as the continuity of the road, and its section-line or mid-section alignment. It should be noted that the overlapping range of ADT is intended to allow for consideration of these other factors.

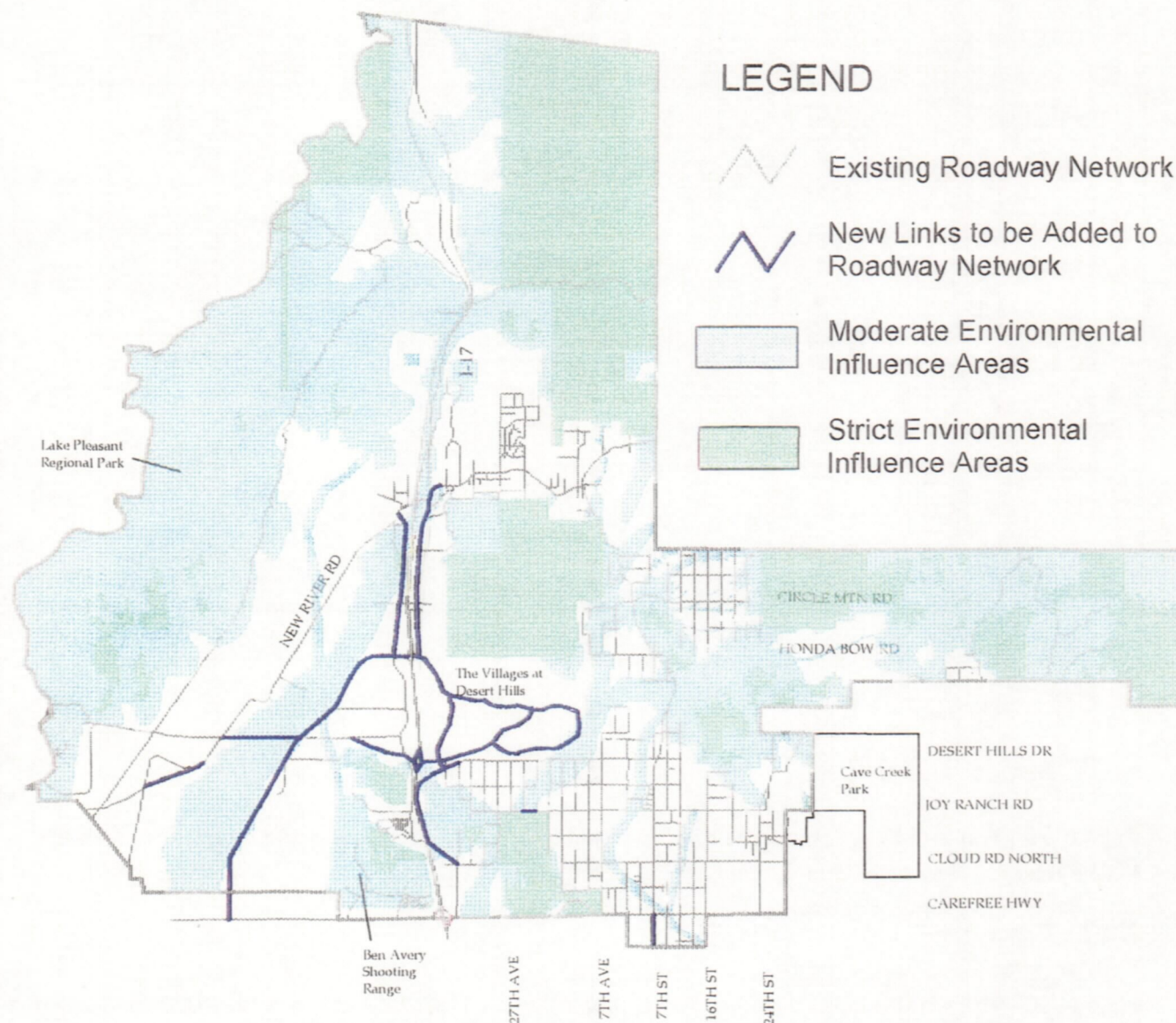
Figure 11 summarizes the new roadway alignments in this roadway network and shows the relationship of the new roads to the environmental influence areas within the study area. As shown in Figure 11, all new road alignments are located outside all strict environmental influence areas. The new roadway links in the Long Range Plan include:

- All internal streets for the Villages at Desert Hills master planned community, including a new traffic interchange on I-17.
- Improvements and/or roadway widenings of Carefree Highway, Desert Hills Drive, and New River Road west of I-17, Circle Mountain Road, Fig Springs Road, and Spur Cross Road.



Figure 11

## 2015 New Road Links



Note: The exact location of new roadways is subject to future corridor studies and design concept reports. Locations shown here represent approximate corridors.

**SOURCES:**

Lee Engineering  
Logan Simpson & Dye

November, 1996



- A north-south connection along the 39th Avenue Corridor between Honda Bow Road and New River Road, parallel to I-17.
- A north-south connection parallel to I-17 along the 43rd Avenue Corridor, connecting Pioneer Road to New River road on the west of I-17.
- A minor arterial roadway at 67th Avenue, following the New River Wash, from Carefree Highway to Honda Bow Road.
- An east-west connection along Old Haul Road, between Pioneer Road (43rd Avenue) and New River Road, west of I-17.
- Extension of Desert Hills Drive to connect with the Pioneer Road interchange.
- 27th Avenue north of New River Road.
- 7th Street south of Carefree Highway.
- Extension of Honda Bow Road west from the I-17 interchange to 43rd Avenue and connecting with the 67th Avenue roadway.
- Connection between 33rd Avenue and the Pioneer Road traffic interchange on I-17. A "T" intersection with the Desert Hills Drive extension should be developed a minimum of 400 feet east of the centerline of the I-17 northbound ramp junction with Pioneer Road.
- Connection between 43rd Avenue and I-17 at the Desert Hills Drive alignment.
- Widening of I-17 from the proposed new traffic interchange to Carefree Highway.

Figure 12 presents the Recommended roadway network and the number of lanes for all of the roadways.

### *Traffic Forecasts*

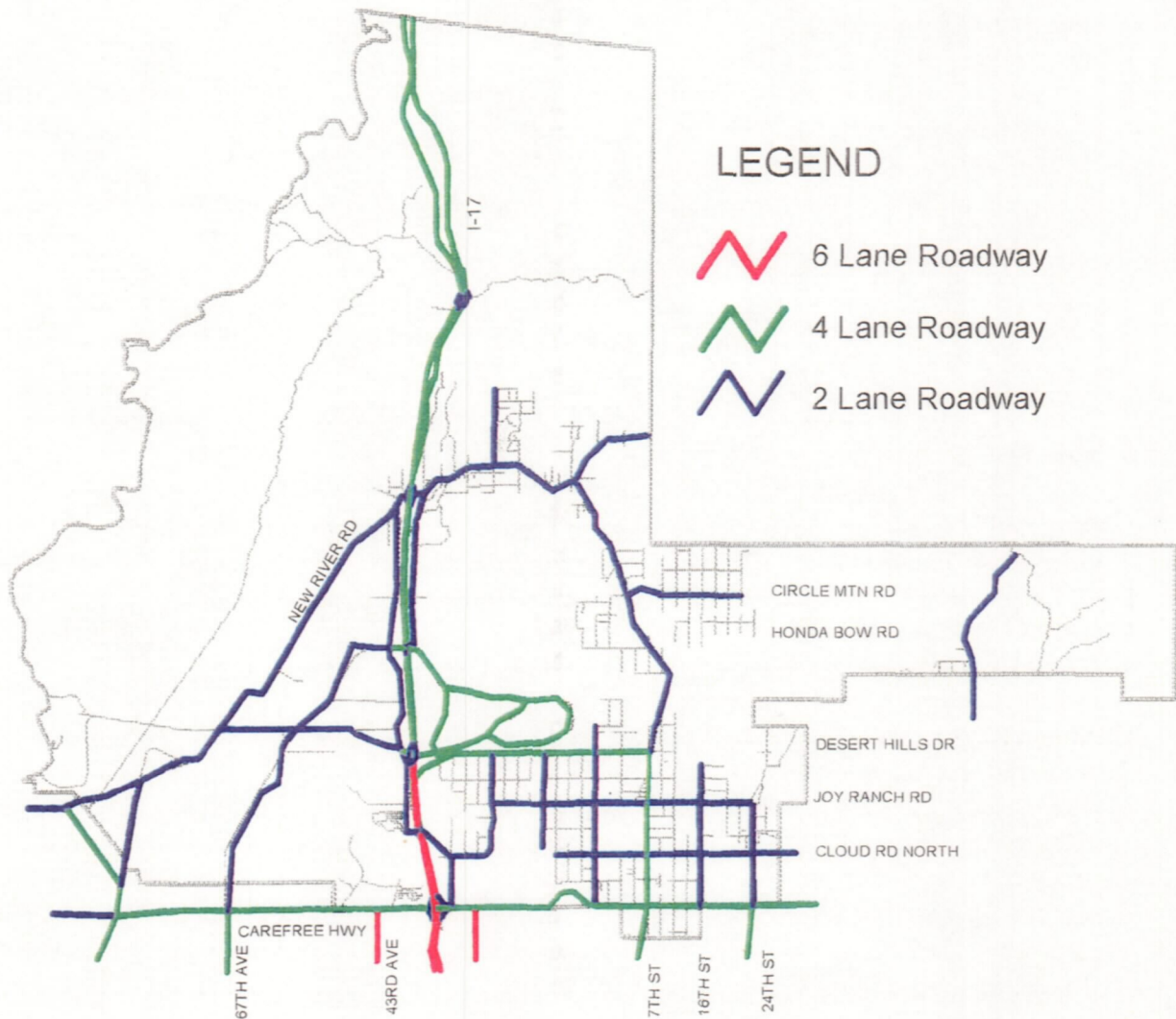
As with the alternative networks, a model run was conducted to project future traffic volumes for the Recommended scenario. The model was run using the Recommended roadway network and assuming the long range Corridor development pattern. The recommended roadway network assumed the east-west Dynamite Road corridor, located 1 to 2 miles south of Carefree Highway, will be constructed. It also assumed that I-17 is widened to three lanes in each direction south of the study area.





Figure 12

## 2015 Recommended Number of Lanes



Note: The exact location of new roadways is subject to future corridor studies and design concept reports. Locations shown here represent approximate corridors.

### SOURCES:

Lee Engineering  
Logan Simpson & Dye

November, 1996



Figure 13 shows the traffic forecasts for the Recommended roadway network with the Corridor land use development pattern. The figure shows total average weekday traffic forecasts (ADT) in thousands of vehicles.

Traffic volumes on I-17, north of Carefree Highway, are projected to be 129,000 vehicles per day by 2015. This compares to a current maximum volume of about 27,000 ADT north of Carefree Highway. The highest projected volume on Carefree Highway is 23,400 ADT, located just to the east of I-17, as compared to 9,400 ADT today. The highest traffic volume at a traffic interchange occurs at the Desert Hills interchange, which is forecast to carry 27,400 ADT across the overpass.

A total of 2,008,668 vehicle-miles of travel (VMT) and 64,685 vehicle-hours of travel (VHT) occur for the Recommended roadway network.

The Recommended network consciously seeks to develop a system of north/south arterials on either side of I-17 to provide traffic relief and an alternate route when the freeway is closed. However, the arterials are not continuous due to hills on either side of the freeway, and the freeway speeds are significantly higher than the parallel routes. This means most traffic prefers to use I-17. This emphasizes the need for capacity improvements on I-17 and at the interchanges with I-17.

### *Capacity Analysis*

Capacity analyses were performed on many of the intersections and all the freeway interchanges within the study area, according to the procedure documented earlier in this report. Figure 14 presents the levels of service for the Recommended roadway network. Almost all intersections operate at a level of service "C" or better during peak hours. The exception is the intersection of Carefree Highway and 7th Street, which operates at level of service "D".

Capacity analyses were also conducted at the I-17 ramp junctions for the traffic interchanges at New River Road, Honda Bow Road (Desert Hills), the proposed location, Pioneer Road, and Carefree Highway. The analyses were conducted utilizing the methodologies contained in Chapter 5, Ramps and Ramp Junctions, of the *Highway Capacity Manual* (HCM). These procedures check the critical capacity at two locations: the maximum traffic flow departing the merge or diverge area and the maximum flow that can reasonably enter the merge or diverge area. If these capacities are not exceeded, the level of service is determined by the density within the merge or diverge influence area. The average speed within the merge or diverge area is also predicted. The level of service criteria for ramp junctions are presented in Table 8.

The results of the analyses are shown in Figure 14. As shown in the figure, traffic operations at all ramp junctions are favorable with all off-ramp diverge areas operating at level of service C or better. The southbound on-ramp for the Pioneer Road traffic interchange operates at level of service D during peak hours. All other on-ramp merge areas operate at level of service C or better during peak hours.

**Table 8. Level of Service Criteria for Ramp-Freeway Junction Areas of Influence**

Level of Service	Maximum Density (Primary Measure) (PC/MI/LN)	Minimum Speed (Secondary Measure) (MPH)
A	10	58
B	20	56
C	28	52
D	35	46
E	>35	42
F	a	a

a - demand flows exceed capacity criteria

Source: Table 5-2, *Highway Capacity Manual*, Updated 1994.

This analysis assumed that the I-17/Honda Bow Road (Desert Hills) traffic interchange is reconstructed to improve the existing awkward configuration. It also assumed that I-17 is widened to three lanes in each direction south of the proposed new interchange to serve the Villages at Desert Hills Master Planned Community.

### Transit Facilities

The results of the Transportation Survey, performed by MCDOT, indicated that residents in the study area do not consider transit a high priority at this time. However, many felt the need for two types of transit service: park-and-ride lots and services for the elderly and handicapped.

Park-and-ride lots would work well along transit lines offering express service into the Phoenix area. Express transit or subscription bus and vanpool service to the Northeast Valley Study Area could be provided along the I-17 corridor. A park-and-ride lot generally collects its demand from a "watershed" or market area surrounding the location. This region is normally parabolic in shape with a length of five to seven miles and a width of six to eight miles. The long distance to concentrations of jobs in the center of the region emphasizes the advantages of transit or shared ride commuting.

Four locations are proposed for consideration as future sites for park-and-ride lots: I-17/Carefree Highway, I-17/Pioneer Road, the proposed traffic interchange near Deadman Wash, and I-17/Honda Bow Road (Desert Hills). Park-and-ride lots located at the proposed traffic interchange and the I-17/Honda Bow Road (Desert Hills) interchange would most likely serve residences in the Villages at Desert Hills. The I-17/Pioneer Road location is dependent on the connection of Desert Hills Drive to the Pioneer Road interchange, which would allow direct access from the Desert Hills community. Park-and-ride lots provided at either I-17/Carefree Highway or I-17/Pioneer Road would be more accessible to all residents in the Northeast Valley Study Area, particularly the Desert Hills Community and the Villages at Desert Hills. The proposed park-and-ride lot locations are presented on Figure 15.



Figure 13

# Recommended 2015 Roadway Network, Future Average Weekday Traffic

## LEGEND

- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

Average Weekday Traffic in Thousands

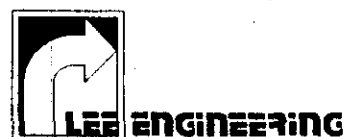
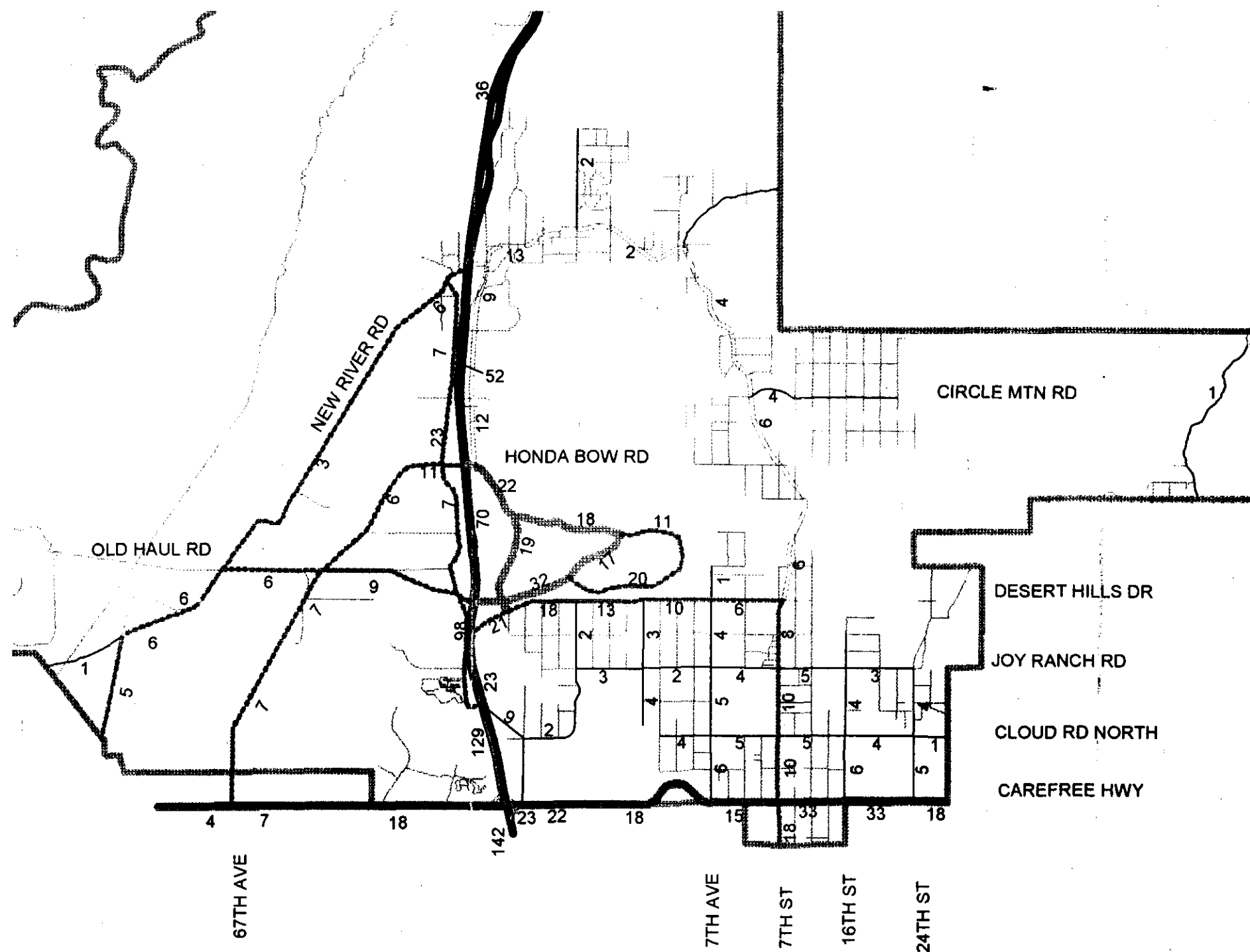


## SOURCES:

Lee Engineering  
Logan Simpson Dye

November, 1996

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## Northeast Valley Area Transportation Study

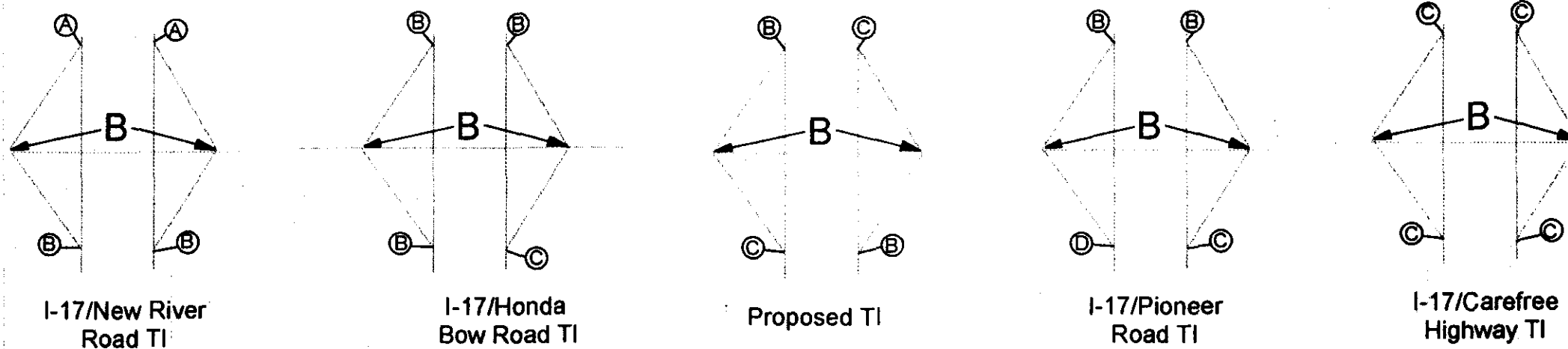


Figure 14

## 2015 Recommended Network Level of Service

### LEGEND

- Roads
- Annexed Phoenix Area
- Annexed Peoria Area
- Peak Hour Level of Service, Year 2015
- New Roads in Recommended Network

1 0 1 2 Miles

### SOURCES:

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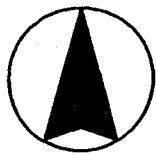
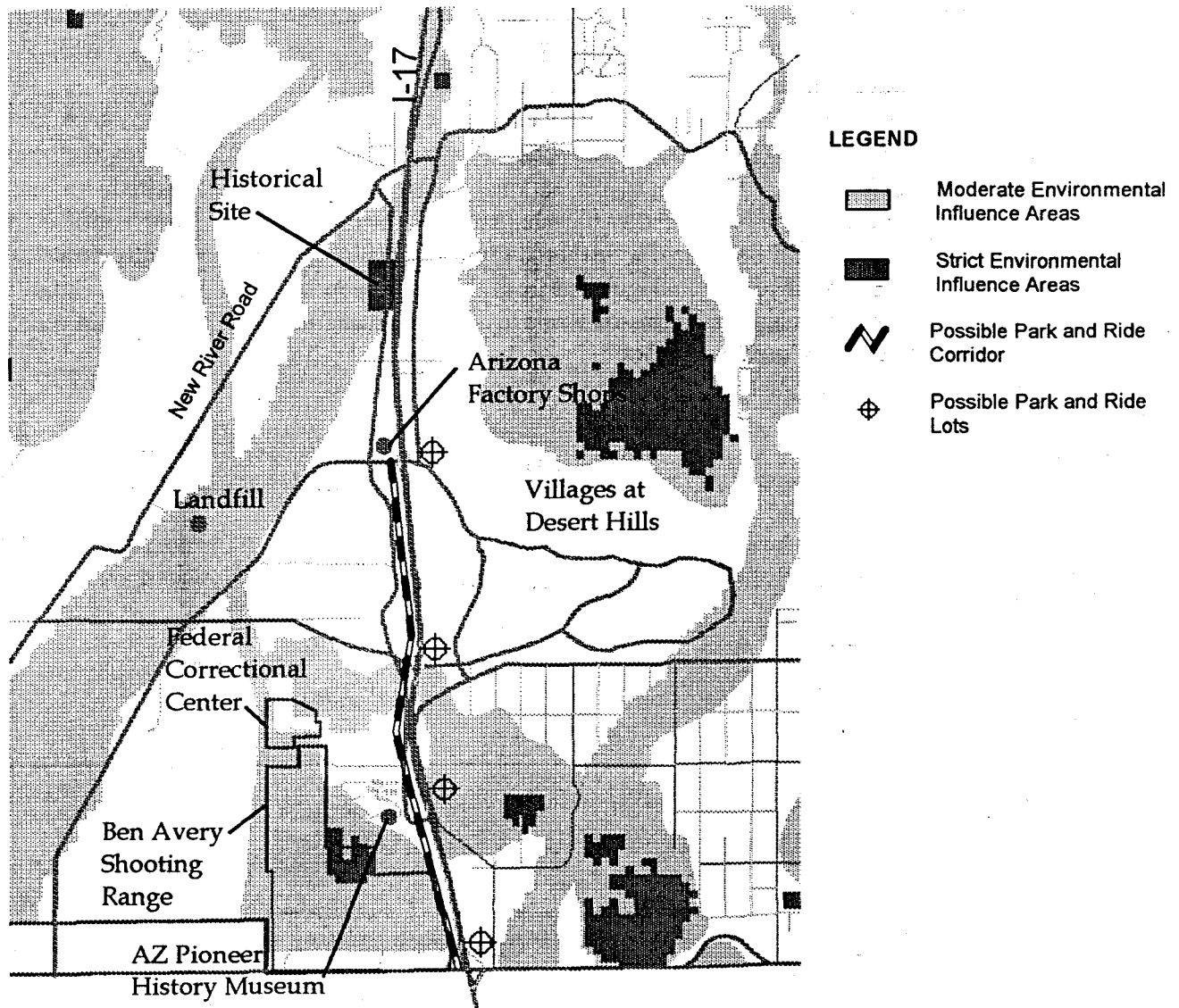


Figure 15

## 2015 Future Park and Ride Locations



Note: Locations of Park and Ride Lots are conceptual only. Actual locations are subject to actions of the Regional Public Transit Authority, local governments and private land owners.

**SOURCES:**

Lee Engineering  
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## Northeast Valley Area Transportation Study

The Northeast Valley Study Area would probably be able to support two park-and-ride locations in the intermediate term. Therefore, it is recommended that only two sites be developed. A park-and-ride demand study may be useful in determining the location and timing for park-and-ride facilities along the I-17 corridor.

### **Non-Motorized Facilities**

The non-motorized trails map, presented in Figure 16, shows proposed locations for a network of trails with a potential variety of uses. The trail network is not intended to preclude more detailed designations or systems, but is intended to provide a location for existing and proposed major routes, much like the "arterial" designation for the roadway system. The scale of this study does not allow individual designations for proposed recreational hiking or commuter pedestrian routes, or for equestrian, mountain bike, or commuter bicycle use. The distinction between recreational and non-recreational uses should be part of a further study. The trails which are currently designated and known to be field-verified are distinguished from the trails proposed as a part of this study. Also, trails proposed to be within road rights-of-way are differentiated from trails proposed in recreational areas and public lands such as washes.

Figure 16

Non-Motorized  
Travelways

LEGEND

Proposed Travelways

Along Roadways (Paved/Unpaved)  
Bike Lanes (2 sides)  
Walkways - 8' min.  
Equestrian Path - 1 side

In Washes  
Mtn Bikes, Hiking, Equestrian

Other Access  
Dirt Roads, Utility Corridors,  
Existing Trails

Trailheads (Proposed)

Trailheads (Existing)

Roads

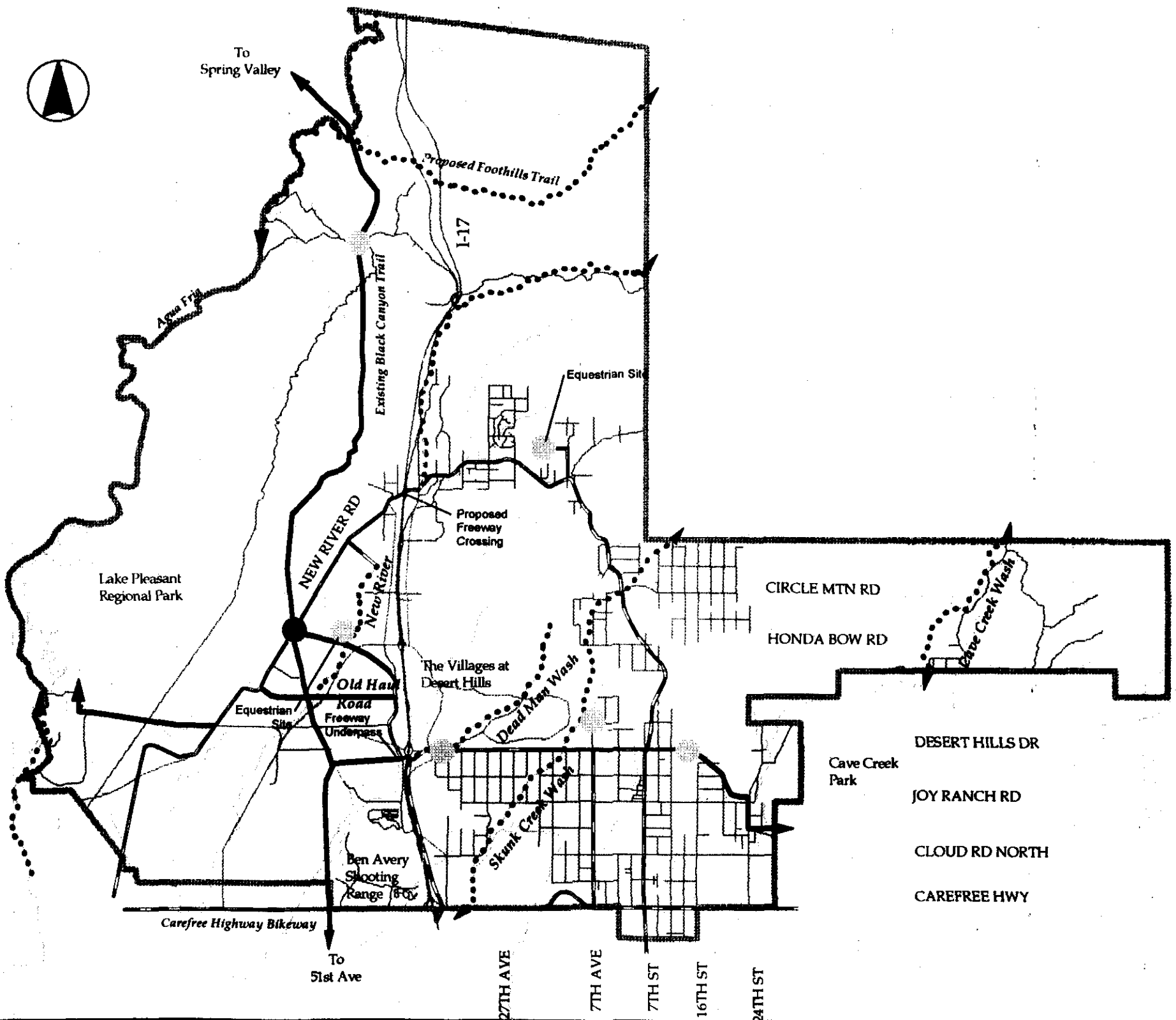
Rivers/Washes

1 0 1 2 Miles

SOURCES:  
Lee Engineering  
Logan Simpson & Dye

November, 1996

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## **CHAPTER 6**

### **TEN-YEAR ACTION PLAN AND PHASING PROGRAM**

#### **Ten Year Action Plan**

The ten-year action plan presents those actions which should be taken during the next ten years to implement the recommendations of the Northeast Valley Area Transportation Plan. The primary implementing agency is Maricopa County, but many of the actions presented in the plan require coordination, cooperation and implementation by other agencies and private groups. Additionally, annexation may occur, moving the lead responsibility to cities.

The ten-year action plan looks at transportation system development in six areas:

- The I-17 corridor
- Arterials and collectors
- Trailways, open spaces and connections to National Forests
- Transit actions
- Local streets
- Air quality hotspots

#### **I-17 Corridor**

The Interstate 17 highway runs north-south through the center of the study area with five diamond interchanges and an additional one planned. It is the most heavily traveled road in the study area, carrying nearly 80 percent of all VMT in the study area in 1995. It will remain the major connection from the Northeast Valley to the central part of the metropolitan area. The master planned community of Villages at Desert Hills is oriented toward I-17. Traffic operations on I-17 are an important concern to residents of the Northeast Valley.

I-17 will be the subject of a comprehensive Multimodal Corridor Profile, conducted by ADOT for major travel corridors throughout the state. It is currently being studied by the developer of the Villages at Desert Hills for possible requests for Change of Access. Improvements to the existing Desert Hills Interchange are also being studied by ADOT, in response to awkward configuration and traffic generated by the nearby factory outlet shops.

Overpasses over I-17 at Carefree Highway, Pioneer Road, and Honda Bow Road (Desert Hills) interchanges are two lane, rural design overpasses. With increased development and traffic, these will need to be replaced with four lane overpasses.

The following specific actions are recommended for the 1996-2005 period:

1. Maricopa County should participate with ADOT in the Multimodal Corridor Profile of I-17. This study should focus on how I-17 can accommodate increased intercity traffic, and growth in

the study area including the planned Villages at Desert Hills, factory outlet mall, and other possible master planned communities.

2. ADOT should study improvements to the I-17/Honda Bow Road (Desert Hills) interchange serving the factory outlet shops. Private developers should contribute to funding for construction. Any short term improvements should be consistent with the long range plan for the Northeast Valley.
3. ADOT should study improvements to the I-17/Carefree Highway interchange. Any short term improvements should be consistent with the long range plan for the Northeast Valley.
4. Maricopa County should study the need for relief routes along I-17 between the Pioneer Road interchange and the I-17/Honda Bow Road (Desert Hills) interchange.

### **Arterials and Collectors**

The roadway network for the Northeast Valley consists primarily of arterial and collector roads. The existing network of arterials and collectors for the Northeast Valley are designated along curvilinear routes, defined according to topography and environmental constraints of the land. These alignments are encouraged and maintain the rural nature of the community.

Development of the arterial routes should progress in a logical sequence and be consistent with surrounding communities and other jurisdiction Transportation Master Plans, State Transportation Plan, and MAG's Northwest Valley Study.

The following specific actions are recommended for the 1996-2005 period:

1. Maricopa County roadway design standards should be modified for the Northeast Valley. Designs should encourage the rural nature of the community by providing wide, unimproved shoulders rather than curbs, gutter, and sidewalks and encourage right-of-way designations for bike, pedestrian and, when safe, equestrian trails. Excess street lighting should be avoided.
2. Maricopa County should study the need for intersection improvements along the major arterial routes. The ten-year program indicates several intersection improvements. Intersection improvements should be made to maintain adequate levels of service, D or better, within the Northeast Valley.
3. Maricopa County should measure and mitigate the regional transportation system costs and require that new developments within the Northeast Valley pay for their share of roadways within their development. The Maricopa County requirements on traffic impact studies should be adhered to in reviewing zoning and site development requests.

4. Carefree Highway should be designated as a scenic parkway, implementing development guidelines and sight planning/design standards to be identified during Phase 2 of the Carefree Highway Scenic Corridor Study.
5. Construction of the Dynamite Corridor should be encouraged to avoid overloading Carefree Highway and increasing indirection of travel to and from development south of Carefree Highway.
6. Arterials, but not necessarily collectors, should have all-weather crossings of waterways.

### **Local Streets**

Besides arterials and collector roads, the Northeast Valley has many streets serving the local developments. New local streets will be constructed as new developments occur within the Northeast Valley. These streets should also be designed in accordance with Maricopa County guidelines for the Northeast Valley and preserve the rural nature of the community.

The following specific actions are recommended for the 1996-2005 period:

1. Construction of local streets should be the responsibility of the adjacent landowners requesting the improvements and should be designed in accordance to Maricopa County guidelines for the Northeast Valley.
2. Maricopa County should discourage the construction of local streets and new development within critically constrained environmentally sensitive areas. Local streets and new developments in moderately constrained areas should be mitigated.
3. Local residents should have input to the decisions on what level of maintenance to provide for local streets. Some areas want low maintenance to discourage increased traffic or high speeds. Others want higher levels of maintenance to improve surface riding conditions. All roads must be maintained to safe levels for the speed, type, and volume of traffic.

### **Trailways and Open Space**

Non-motorized travelways are an important aspect of the Northeast Valley Transportation Plan. One goal of the plan is to provide public access that will reasonably accommodate non-motorized travel modes along roadways, including bike routes, equestrian trails and paths, and pedestrian walkways to open space within five miles of Northeast Valley residents' homes.

The following specific actions are recommended for the 1996-2005 period:

1. Maricopa County Planning Department should encourage all new developments to designate bike and equestrian trails. Maricopa County should also require all new developments to provide bikeways and walkways for school children within elementary school service areas.

2. Maricopa County Department of Transportation should designate and preserve bike lanes along New River Road, Carefree Highway, and 7th Street.
3. Maricopa County Recreational Services division should designate and preserve equestrian trails along major washes within the Northeast Valley, and connecting Tonto National Forest and Cave Creek Recreation Area, as identified in the *MAG Desert Spaces Plan*.
4. Northeast Valley residents should encourage and participate in multi-jurisdictional coordination of trailways.
5. Trailway crossings of I-17, Carefree Highway, and other major roads should be identified and designated for safe movement of pedestrians, bicyclists, and equestrians.
6. Trailheads should be developed as described on Figure 17 in Working Paper No. 5 (Long Range Transportation Plan).
7. The area north of Cave Creek Recreational Area should be encouraged to remain as permanent open space and procedures should be initiated to do this. No roads are planned by MCDOT in this area.

#### **Transit Actions**

There is no existing transit service serving the Northeast Valley. Regional public transit services should be encouraged to service future developments in the Northeast Valley. According to the Transportation Survey, performed by MCDOT, Northeast Valley residents do not consider transit a high priority for the short term. Many residents felt the need for only two types of transit service in the future: park-and-ride lots and service for the elderly.

The following specific actions are recommended for the 1996-2005 period:

1. Park-and-ride lots should be planned along I-17 at the Carefree Highway traffic interchange, Honda Bow (Desert Hills) interchange, and the Pioneer Road interchange.
2. Northeast Valley should work with Valley Metro to develop public/private transit partnerships. Carpool, vanpool, and elderly shuttle services should be encouraged.

#### **Air Quality Hotspots**

Overall, motor vehicle emissions in the study area are not a major problem. There is an average of 2,700 VMT per square mile in 1995, which is forecast to 10,000 VMT per square mile in 2015. This compares to 100,000 to 200,000 VMT per square mile in freeway corridors in the urban portion of the region.

However, this traffic is concentrated in the I-17 corridor. Moreover the I-17 corridor traverses largely lower elevation lands where pollution might collect. Care should be taken to avoid creation of congested hot spots at the interchanges along I-17, as described in the following action items.

Many of the recommendations previously mentioned are intended to work together to keep the emissions levels acceptable and avoid extremely high concentrations points. More direct methods of reducing emissions, such as a stringent Inspection and Maintenance program, and regulating point source and area source emissions of carbon monoxide, hydrocarbons, and particulate matter are also needed. The pristine natural environment is a reason to increase, not relax, air pollution reduction programs.

The following specific actions are recommended for the 1996-2005 period:

1. Relief routes along the I-17 should be built to discourage local traffic from using I-17. Additional arterial roadways should provide residents with alternate routes from which to choose, which will also keep these trips off of I-17.
2. Alternate modes of travel should be promoted. Encouragement of high occupancy vehicle use along I-17, such as park-and-ride and vanpools will decrease the number of vehicles and the emissions. Constructing non-motorized travelways will provide local residents with an alternative to driving.
3. Interchange improvements should be made along I-17, including widening the overpasses at Carefree Highway, Pioneer interchange and Desert Hills interchange.
4. Widening I-17 to three lanes in each direction south of the proposed new interchange serving Villages at Desert Hills will help avoid traffic slowdowns on the freeway mainline.

#### **Five Year, Ten Year, and Twenty Year Program**

The roadway improvements in the Long Range Transportation Plan for the Northeast Valley are fiscally constrained to the estimate of total road user revenues generated by vehicles traveling in the study area. Road user revenues are split between ADOT, Maricopa County and cities and towns. Each has a separate budget and is responsible for developing roadways within its jurisdiction. The study area represents only a small part of the total jurisdiction of either ADOT or Maricopa County.

Road improvements are identified according to the agency responsible for constructing them, including a number of projects which will be built by private developers. By showing that total road development costs are in line with total user revenues generated in the study area, it can be concluded that the plan is fiscally reasonable and fair.

The following section presents the prioritization of roadway projects in the long range plan. Technical procedures for establishing project priorities are described. An estimate of total road user taxes generated by traffic in the study area is presented. From this, the estimated cost of maintaining



existing and new roads is subtracted, leaving an estimate of revenues available for roadway improvements. Road improvements in the five, ten and twenty year periods are constrained to these estimates of available revenues.

Available revenues were compared to construction costs for prioritized projects to create a phasing program of projects for the five, ten and long range (twenty year) time horizons. Projects on the current five-year construction program of Maricopa County and ADOT were added to the list, if they had not already begun construction. In fact, currently programmed expenditures (\$18,434,000) in the study area exceed five-year revenues (\$6,508,500) generated by area vehicular travel, as shown in Table 1 of Working Paper No. 6 (Ten-Year Action Plan and Phasing Program). This is largely due to planned reconstruction of the Carefree Highway in advance of anticipated growth.

Several intersection projects were found to have negative or negligible benefits, and so were assumed to be unneeded. These were deleted from the listing. The resulting program of prioritized projects is shown on Table 9. The project phasing program is depicted in Figure 17.

Projects shown in Table 9 are ranked according to travel time savings and logical sequencing of construction. A detailed description of how these projects were ranked is provided in the previous section on prioritization of roadway projects. Projects are listed in order of their cost effectiveness index (CEI), except for those marked by a double asterisk (\*\*). The CEI represents the hours of vehicle savings per dollar of construction and maintenance costs. Projects marked by a double asterisk are those projects that must be ranked according to the logical sequence of construction. In most cases, the project marked by the double asterisk is dependant upon the construction of the previously listed project.

Table 9 also shows projects which are anticipated to be built by private developers. Projects anticipated to be built as part of the Villages at Desert Hills master planned community are prefaced with "Villages."

The adopted master plan for the Villages at Desert Hills currently calls for initial access to the project via the I-17/Desert Hills (Honda Bow alignment) interchange and the I-17/Pioneer Road interchange. A north-south linkage from Desert Hills Road to the Pioneer interchange is provided at approximately the 35th Avenue alignment. This linkage will require a four lane, minor arterial cross section and a connection to the Pioneer Road interchange designed to handle the forecast traffic volume of 23,000 vehicles per day.

A future, third interchange approximately 1.5 miles north of the Pioneer interchange, just north of Deadman Wash, will be evaluated as the project develops. The decision to build the improvements to the existing Pioneer Road interchange or the new interchange at Deadman Wash will be analyzed at such time as a second interchange is needed. The relevant factors will include the relative costs and the quality of access provided to the neighborhoods.

Table 9. Five Year, Ten Year, and Long Range Recommendations

5 Year Program	Improvement	Responsible Agency			COST	CEI
		Local Gov't	ADOT	Developer		
33rd Ave/Cloud Rd/27th Ave, Carefree Hwy to Desert Hills Dr *	Improve & realign 2 lane road	✓			\$576,000	
Carefree Hwy, I-17 to 7th St *	Widen to 4 lanes divided	✓			\$2,869,000	
Carefree Hwy, 7th St to Cave Creek Rd *	Widen to 4 lanes divided	✓			\$7,798,000	
Spur Cross Road, Cave Creek Town Limit to Honda Bow Rd *	Grade, Drain, Pen. & Chip Seal	✓			\$325,000	
I-17, New River to Moores Gulch *	Mill and Replace Pavm't.		✓		\$3,641,000	
27th Ave, Twin Peaks Ln to New River Rd *	Improve low volume road	✓			\$30,000	
New River Rd at New River *	reconstruct bridge	✓			\$2,350,000	
5 Year Total Construction Costs					\$17,589,000	

5 - 10 Year Program	Improvement	Responsible Agency			COST	CEI
		Local Gov't	ADOT	Developer		
Carefree Hwy / 24th St.	Traffic Signal & Intersec. Imp.	✓			\$200,000	275.62
Carefree Hwy / 7th St.	Traffic Signal & Intersec. Imp.	✓			\$200,000	245.36
Carefree Hwy / 33rd Ave.	Traffic Signal & Intersec. Imp.	✓			\$200,000	187.08
Carefree Hwy / 7th Ave.	Traffic Signal & Intersec. Imp.	✓			\$200,000	47.28
Carefree Highway, I-17 to 43rd Ave ***	Widen to 4 lanes divided		✓		\$580,500	39.40
Carefree Highway, 43rd Ave to 51st Ave ***	Widen to 4 lanes divided		✓		\$645,100	22.38
Carefree Hwy / 51st Ave **	Traffic Signal & Intersec. Imp.		✓		\$200,000	107.30
Carefree Hwy / 16th St	Traffic Signal & Intersec. Imp.	✓			\$300,000	8.72
I-17, Carefree Highway TI to Pioneer TI	Widen to 3 lanes each dir.		✓		\$1,624,000	8.63
Carefree Hwy / 43rd Ave	Traffic Signal & Intersec. Imp.		✓		\$300,000	6.40
I-17/Honda Bow Rd (Desert Hills TI)	New Overpass, Improve TI		✓	✓	\$5,600,000	6.04
Villages: E. Link, Honda Bow Rd (Desert Hills TI) to Main St **	New 4 lane road			✓	\$3,492,700	0.88
Villages: 35th Ave, Desert Hills Dr to East Link **	New 4 lane road			✓	\$1,940,400	0.94
Villages: 35th Ave / East Link **	Traffic Signal & Intersec. Imp.			✓	\$100,000	141.38
Villages: Main St, I-17 to East Link **	New 4 lane road			✓	\$3,234,000	0.88
Villages: 35th Avenue / Main Street **	Traffic Signal & Intersec. Imp.			✓	\$100,000	540.00
Cloud Rd / 7th St	Traffic Signal & Intersec. Imp.	✓			\$500,000	4.68
Desert Hills Drive, 35th Ave to 27th Ave	Widen to 4 lanes			✓	\$508,500	4.30
Desert Hills Drive, 27th Ave to 19th Ave	Widen to 4 lanes	✓			\$726,500	4.27
Villages: Desert Hills Drive / 35th Avenue **	Traffic Signal & Intersec. Imp.			✓	\$200,000	221.98
I-17 / Pioneer Road TI **	New Overpass, Improve TI		✓	✓	\$5,600,000	2.98
Proposed New I-17 TI near Deadman Wash	Const., connect to Pioneer Rd			✓	\$8,960,000	3.10
I-17, Pioneer TI to Proposed TI near Deadman Wash	Widen to 3 lanes each dir.		✓		\$1,624,000	0.78
5 - 10 Year Total Construction Costs					\$37,035,700	

10 - 20 Year Program	Improvement	Responsible Agency			COST	CEI
		Local Gov't	ADOT	Developer		
Carefree Hwy / 27th Ave	Traffic Signal & Intersec. Imp.	✓			\$200,000	196.87
I-17/Carefree Highway TI	New Overpass, Improve TI		✓		\$5,600,000	2.27
W. New River Rd, Carefree Highway to Old Haul Rd.	2 lane paved Minor Arterial	✓		✓	\$4,536,000	2.15
W. New River Rd, Old Haul Rd to I-17 ***	2 lane paved Minor Arterial	✓		✓	\$2,328,500	1.78
✓ 39th Avenue Corridor, Honda Bow Rd to New River Rd	New 2 lane major collector	✓		✓	\$2,127,000	1.62
39th Avenue Corridor / New River Rd **	Traffic Signal & Intersec. Imp.	✓		✓	\$500,000	72.58
Villages: East Link / 39th Avenue Corridor **	Traffic Signal & Intersec. Imp.			✓	\$200,000	214.59

10 - 20 Year Program (continued)	Improvement	Responsible Agency			COST	CEI
		Local Gov't	ADOT	Developer		
Honda Bow Rd, I-17 to 43rd Ave	New 4 lane Minor Arterial			✓	\$425,400	1.61
New River Road, remove jog E. of I-17	Realign road	✓			\$931,700	1.49
Desert Hills Drive Extension, Desert Hills Dr to I-17 (Pioneer TI)	New 4 lane Road			✓	\$1,837,400	1.28
Carefree Highway, 51st Ave to Lake Pleasant Rd	Widen to 4 lanes divided		✓		\$3,225,300	0.90
Villages: East Loop	New 4 lane Road			✓	\$3,363,400	0.82
Villages: Main St / East Link **	Traffic Signal & Intersec. Imp.			✓	\$100,000	63.26
Villages: East Loop / Main Street **	Traffic Signal & Intersec. Imp.			✓	\$100,000	368.49
✓ 43rd Ave, Honda Bow Rd to New River Rd	New 2 lane major collector	✓		✓	\$1,482,800	0.62
Cloud Road Extension, 33rd Ave to I-17/Pioneer TI	New 2 lane minor collector	✓			\$648,500	0.61
Cloud Road Ext / 35th Ave (Desert Hills Dr Ext)**	Traffic Signal & Intersec. Imp.	✓			\$300,000	153.47
Joy Ranch Rd, connected across Skunk Creek	New 2 lane minor collector	✓			\$141,800	0.61
67th Ave, Carefree Hwy to Old Haul Road	New 2 lane Minor Arterial	✓		✓	\$2,552,500	0.60
7th Street, constructed south of Carefree Hwy	New 4 lane road	✓			\$1,135,700	0.55
Desert Hills Drive, 19th Ave to 7th Ave	Widen to 4 lanes	✓			\$726,500	0.53
67th Ave, Old Haul Rd to Honda Bow Rd	New 2 lane Minor Arterial	✓		✓	\$1,140,600	0.52
Pioneer Rd (43rd Ave), Rockaway Hills Rd to Honda Bow Rd	New 2 lane Minor Arterial	✓			\$1,018,700	0.36
Old Haul Rd, Pioneer Rd to 67th Ave **	2 lane Minor Collector	✓		✓	\$752,600	0.74
Old Haul Rd / Pioneer Rd **	Traffic Signal & Intersec. Imp.	✓		✓	\$400,000	1.31
Old Haul Rd, 67th Ave to New River Rd **	2 lane Minor Collector	✓		✓	\$752,600	0.62
Old Haul Rd / 67th Ave **	Traffic Signal & Intersec. Imp.	✓		✓	\$500,000	3.81
Circle Mountain Rd, New River Rd to 22nd St.	2 lane Minor Collector	✓			\$1,108,800	0.25
Pioneer Rd, Pioneer TI to Rockaway Hills Rd	2 lane Minor Arterial	✓			\$921,700	0.23
Pioneer Rd / Desert Hills Dr **	Traffic Signal & Intersec. Imp.	✓		✓	\$400,000	1.31
Honda Bow Rd / 43rd Ave	Traffic Signal & Intersec. Imp.	✓		✓	\$500,000	0.21
Desert Hills Drive, 7th Ave to 7th St	Widen to 4 lanes	✓			\$726,500	0.16
Joy Ranch Rd, Pioneer Rd to 67th Ave	2 lane Minor Collector	✓		✓	\$1,612,800	0.11
27th Ave, New River Rd to Photo View Rd	2 lane Minor Collector	✓			\$806,400	0.10
Fig Springs Rd, New River Rd to Tonto Nat'l Forest	2 lane Minor Collector	✓			\$655,200	0.10
Spur Cross Rd, Honda Bow Rd to Cottonwood Canyon Rd	2 lane Minor Collector	✓			\$1,035,800	0.10
Joy Ranch Rd, 67th Ave to New River Rd	2 lane Minor Collector, low water xing	✓		✓	\$1,182,000	0.07
Joy Ranch Rd, New River Rd to Lake Pleasant	2 lane Minor Collector	✓		✓	\$645,100	0.05
10 - 20 Year Total Construction Costs					\$46,421,300	

Total Construction Costs for 20 Year Program

\$101,046,000

Notes:

- \* Project scheduled in TIP.
- \*\* Logical construction sequence dependent. Project construction dependent upon completion of previous project(s).
- \*\*\* Dependent upon rate of adjacent development.

This list of projects represents a possible funding scenario for implementing the Northeast Valley Area Transportation Plan. Actual programming of projects takes place when projects are placed on the Maricopa County Capital Improvement Program, ADOT Statewide Transportation Improvement Program, and corresponding programs of other funding agencies.

Developers are responsible for offsite improvements on arterials and collectors necessary to serve their developments.

Figure 17

# Five, Ten, and Long Range Program

## LEGEND

- 5 Year Projects
- ⊠ 5-10 Year Projects
- × 10-20 Year Projects

1 0 1 2 Miles

## SOURCES:

Lee Engineering  
Logan Simpson Dye

November, 1996

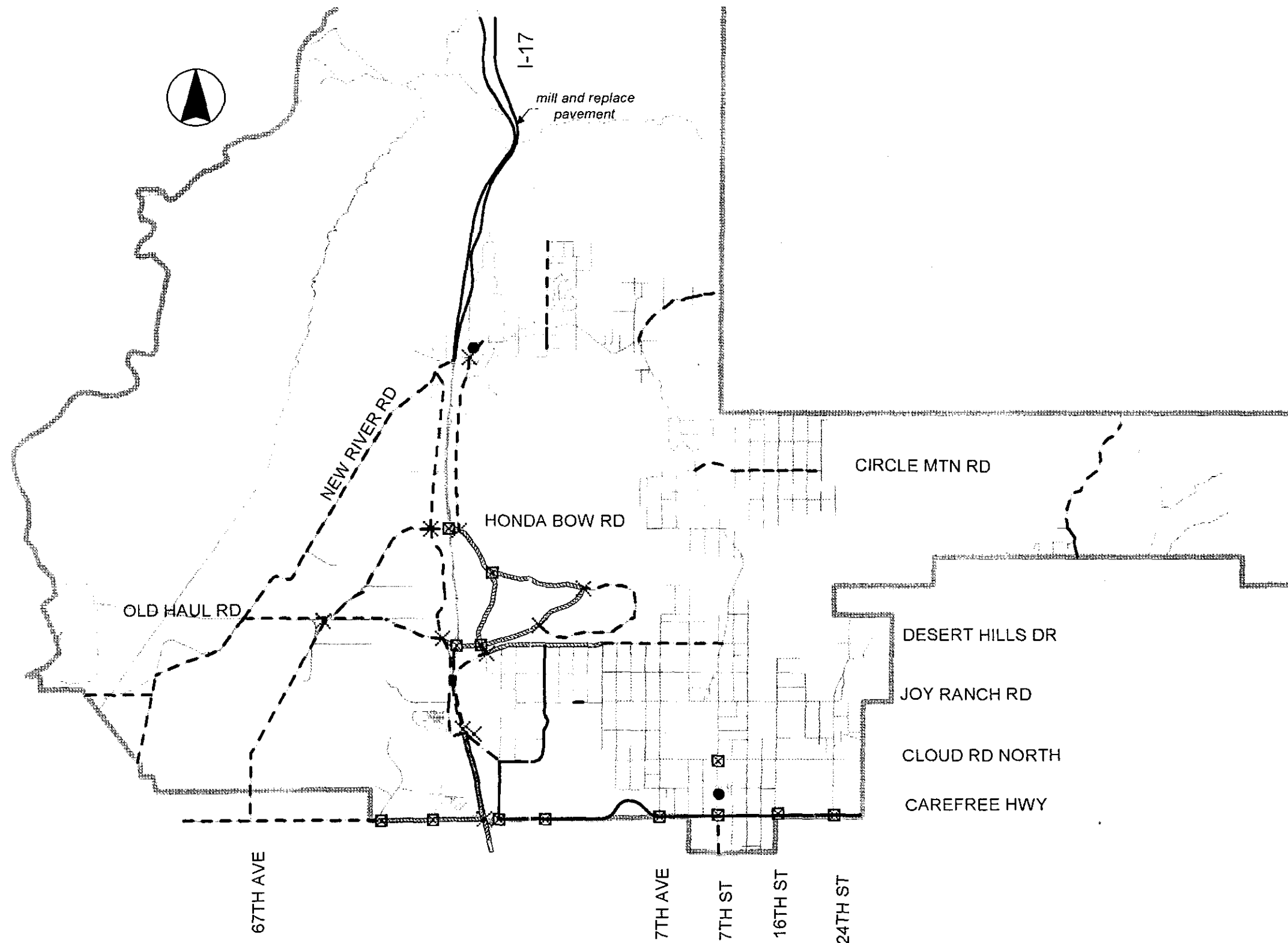
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Maricopa County Department of Transportation

## Northeast Valley Area Transportation Study



LOGAN SIMPSON & DYE



Widening I-17 to three lanes in each direction south of the new interchange near Deadman Wash implies that I-17 is also widened south of the study area. The timing and improvement needs for the entire statewide I-17 corridor is the subject of a future intermodal corridor study to be conducted by ADOT. ADOT must also approve timing and nature of interchange improvements affecting I-17.



## **CHAPTER 7**

### **CONCLUSIONS**

#### **Public Participation**

As part of the development of the Northeast Valley Area Transportation Plan, the proposed plan was reviewed by the public. The public participation process for the Northeast Valley consisted of gathering comments from public meeting held for other studies that were relevant, public representation on the Transportation Advisory Committee (TAC), a survey sent to all residents, and two public meetings.

Relevant comments were gathered from public meetings held in the region for the Desert Spaces Open Space Plan and for the Maricopa County Comprehensive Plan (North Valley). At the Comprehensive Plan meeting on November 8, 1995, a comment card was available requesting response on issues for the Northeast Valley Area Transportation Study. These are summarized in Working Paper No. 3 (Major Study Goals, Policies, and Issues).

On the TAC, the local public was represented by members from the local homeowners associations and civic organizations.

The survey was mailed in December of 1995 by the County to all zip codes within the study area. This represented about 1,000 surveys. Approximately 38 percent of the surveys were returned. The general findings and detailed survey results were published by the County in February, 1996.

Public meetings were held at the local middle school on April 30, 1996, and June 27, 1996, in the evening. The purpose of the first meeting was to receive comment on the draft transportation plan. Approximately 150 people signed in at this meeting. The plan was presented to the public for comment by the County and the Consultant. Comments were recorded at the meeting, received on comment cards at the meeting, and received later in the mail. Revisions were made to the draft transportation plan components based on comments received. The purpose of the second meeting was to present the revised plan. Approximately 120 people signed in at his meeting. The public meeting was conducted in an open house format, with County and Consultant representatives stationed at boards showing the various components of the plan. Samples of written comments received from these public meetings is provided in Appendix 2.

#### **Changes to the Plan**

As development of the study area occurs, refinements to this plan will of course be required. For instance, master plan approvals or other actions may contain stipulations affecting the major street network. In addition, this plan should be reviewed and updated periodically.

## Conclusions

The Northeast Valley Area Transportation Study presents a plan to guide development of this sector of the metropolitan area's transportation system. It presents a few new roadways and upgrades of existing routes which will be necessary to accommodate growth of the study area to a population of about 100,000. Because of the low density of anticipated development, most roadways can remain two-lanes wide. Carefree Highway, Desert Hills Drive, 7th Street and the internal arterials serving the Villages at Desert Hills master planned community will eventually require widening to four lanes.

There is a strong non-motorized travelways element to this plan. Horse-riding, biking and hiking are seen as viable travel options and an important element of the lifestyle of present and future residents. The plan adds a series of new non-motorized travelways which are the major routes tying together a network of local trails and routes.

Interstate 17 is the major transportation corridor running north and south through the middle of the study area. It will experience significant growth and will need to be widened to three lanes in each direction for part its route. One new interchange and three interchange upgrades will be needed to serve this increased traffic. There is a significant potential for express bus service and high-occupancy vehicle usage along this route, and park-and-ride lots are proposed at four locations.

Activities to implement the Northeast Valley Area Transportation Plan are already underway. These include a multimodal corridor study of I-17 from Flagstaff to Phoenix, a scenic corridor study along Carefree Highway, and ongoing efforts to expand the area's trail network.



Appendix 1  
Socioeconomic Data for  
Recommended Network

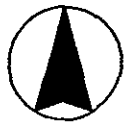
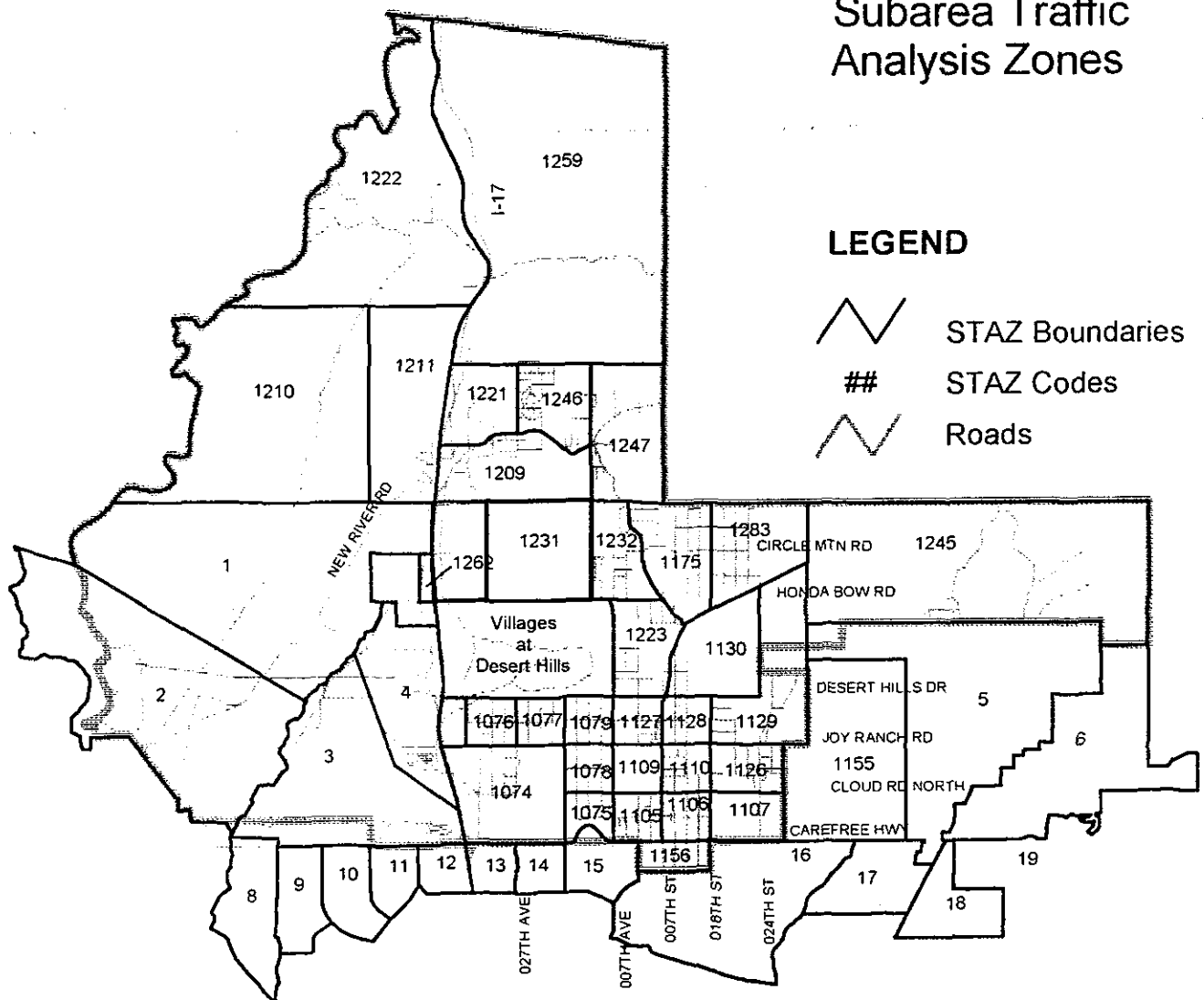


Figure A-1

## Subarea Traffic Analysis Zones



### LEGEND

- STAZ Boundaries
- STAZ Codes
- Roads

1 0 1 2 Miles

### SOURCES:

MCDOT Street Network  
Lee Engineering

November, 1996



LEE ENGINEERING

LOGAN SIMPSON & DYE

Maricopa County Department of Transportation

## Northeast Valley Area Transportation Study

## CORRIDOR ALTERNATIVE

(zones south of Honda Bow Road)

[illegible]

RECOMMENDED NETWORK  
CORRIDOR ALTERNATIVE

Year	2015	2015	2015	2015	2015	2015	2015	2015
TAZ	1128	1129	1130	1223	2	3	4	1156
DIST	6	6	6	6	5	5	5	14
MPA	PH	PH	PH	PH	CO	CO	CO	PH
Res. Pop. in HH	954	596	298	894	1788	1788	8386	1491
Res. Pop. in Grp Qrts							1266	0
Transient Pop.								0
Seasonal Pop.								0
Occ. Res. HHs	320	200	100	300	600	600	2,814	500
Grp Quarters HHs							253	
Transient HHs								
Seasonal HHs								
Other Employment	20	0	0	0	30	70	0	28
Public Employment	59	37	19	56	111	111	540	93
Retail Employment	0	0	0	0	0	130	259	360
Office Employment					45	110	500	95
Industrial Employment					40	45	50	15
Mean HH Income (1988)	46697	46697	46697	40393	63333	49217	49217	46697
Dev. Res. Area (sq mi X 100)	50	31	16	47	94	94	268	42
Undev. Res. Area (sq mi X 100)	28	256	173	145	874	524	36	4
Dev. Emp. Area (sq mi X 100)	2	1	1	2	10	25	65	12
Undev Emp. Area (sq mi X 100)	0	0	0	0	2	5	12	14
TOTAL DEVELOPABLE	80	288	190	194	980	647	382	72
Undevelopable (sq mi X 100)	21	110	138	49	274	181	95	19
Total Area (sq mi X 100)	101	398	328	243	1254	828	477	91
Vehicles	0	0	0	0	0	0	0	0
Post High School Enrollment	0	0	0	0	0	0	0	0
Retirement Pointer	0	0	0	0	0	0	0	0
Distance to ASU X 10	420	420	430	430	460	410	410	360
Daily Parking Cost (cents)	0	0	0	0	0	0	0	0
Hourly Parking Cost (cents)	0	0	0	0	0	0	0	0
Sky Harbor Enplanements	0	0	0	0	0	0	0	0
Terminal Time (minutes)	1	1	1	1	1	1	1	1

(zones north of Honda Bow Road)

2015	2015	2015	2015
1231	1232	1175	1233
6	6	6	6
PH	PH	PH	PH
6395	596	685	596
2,146	200	230	200
28	10	24	16
397	37	43	37
144	50	0	0
90			15
60			
40393	40393	46697	46697
335	31	36	31
42	133	193	230
35	2	1	3
10	0	0	0
422	167	230	264
244	43	91	82
666	209	321	346
0	0	0	0
0	0	0	0
0	0	0	0
450	450	460	470
0	0	0	0
0	0	0	0
1	1	1	1

RECOMMENDED NETWORK  
CORRIDOR ALTERNATIVE

Year	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015
TAZ	1245	1210	1211	1222	1209	1221	1246	1247	1259	1	1262
DIST	7	5	5	5	3	3	3	3	3	5	5
MPA	CC	CO	CO	CO	CO	CO	CO	CO	CO	CO	CO
Res. Pop. In HH	596	30	1565	30	3154	644	596	596	45	224	681
Res. Pop. In Grp Qrts											
Transient Pop.											
Seasonal Pop.											
Occ. Res. HHs	200	10	525	10	1,058	216	200	200	15	75	229
Grp Quarters HHs											
Transient HHs											
Seasonal HHs											
Other Employment	0	28	24	0	24	62	0	0	0	42	200
Public Employment	0	0	97	0	196	101	37	37	0	14	42
Retail Employment	0	0	245	0	288	259	29	29	0	0	1045
Office Employment			90		120	110	100	40		70	150
Industrial Employment			80		60	45	25			75	100
Mean HH Income (1988)	44220	40393	40393	40393	46697	46697	46697	40393	40393	63333	49217
Dev. Res. Area (sq mi X 100)	31	2	82	2	165	34	31	31	2	12	36
Undev. Res. Area (sq mi X 100)	1021	1222	388	919	125	120	135	303	2276	1309	0
Dev. Emp. Area (sq mi X 100)	5	3	40	3	25	20	17	5	0	45	23
Undev Emp. Area (sq mi X 100)	0	5	12	0	5	12	5	0	0	14	0
TOTAL DEVELOPABLE	1057	1231	522	923	321	186	188	339	2278	1380	59
Undevelopable (sq mi X 100)	739	336	134	532	80	47	53	86	647	493	6
Total Area (sq mi X 100)	1796	1567	656	1455	401	233	241	425	2925	1873	65
Vehicles	0	0	0	0	0	0	0	0	0	0	0
Post High School Enrollment	0	0	0	0	0	0	0	0	0	0	0
Retirement Pointer	0	0	0	0	0	0	0	0	0	0	0
Distance to ASU X 10	460	490	490	520	450	460	460	470	520	480	440
Daily Parking Cost (cents)	0	0	0	0	0	0	0	0	0	0	0
Hourly Parking Cost (cents)	0	0	0	0	0	0	0	0	0	0	0
Sky Harbor Enplanements	0	0	0	0	0	0	0	0	0	0	0
Terminal Time (minutes)	1	1	1	1	1	1	1	1	1	1	1

61041  
1266  
0  
0  
20484  
253  
0  
0  
712  
3952  
3600  
1880  
677  
46621  
2541  
10655  
417  
108  
13720  
4925  
18646

## Traffic Impact Study

## Traffic Impact Study

### Table 1. Land Use Key

[illegible]

80% Buildout of Villages at Desert Hills

Traffic Impact Study 13, A, &

Table 1, Land Use Key

W. Golf

14

B

C

D

E

F1

F2

F3

North Golf

South Golf

Year	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015
TAZ	1174	1173	1196	1197	1257	1248	1265	1266	1267	1234	1236
DIST	5	5	6	6	6	6	6	6	6	6	6
MPA	CO	CO	PH	PH	PH	PH	PH	PH	PH	PH	PH
Res. Pop. in HH	3137	2748	696	591	544	0	286	744	601	0	0
Res. Pop. in Grp Qrts	0	0	0	0	0	0	0	0	0	0	0
Transient Pop.	0	0	0	0	0	0	0	0	0	0	0
Seasonal Pop.	0	0	0	0	0	0	0	0	0	0	0
Occ. Res. HHs	1053	922	234	198	182	0	96	250	202	0	0
Grp Quarters HHs	0	0	0	0	0	0	0	0	0	0	0
Transient HHs	0	0	0	0	0	0	0	0	0	0	0
Seasonal HHs	0	0	0	0	0	0	0	0	0	0	0
Other Employment	36	0	5	0	0	0	0	0	0	36	36
Public Employment	179	157	40	54	51	0	16	43	64	0	0
Retail Employment	0	0	80	30	30	300	150	0	30	0	0
Office Employment	2500	0	0	40	40	200	75	0	0	0	0
Industrial Employment	0	0	0	20	20	0	75	0	10	0	0
Mean HH Income (1988)	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000	55000
Dev. Res. Area (sq mi X 100)	11	24	9	8	7	0	3	6	5	0	0
Undev. Res. Area (sq mi X 100)	3	6	2	2	2	0	1	2	1	0	0
Dev. Emp. Area (sq mi X 100)	31	2	1	2	2	4	3	1	1	0	0
Undev Emp. Area (sq mi X 100)	0	0	0	0	0	0	0	0	0	0	0
Undevelopable Area (sq mi X 100)	64	20	4	2	1	2	7	10	9	34	28
Total Area (sq mi x 100)	109	52	16	13	11	7	13	19	16	34	28
Vehicles	0	0	0	0	0	0	0	0	0	0	0
Post High School Enrollment	0	0	0	0	0	0	0	0	0	0	0
Retirement Pointer	0	0	0	0	0	0	0	0	0	0	0
Distance to ASU X 10	430	430	420	420	410	410	410	410	410	410	410
Daily Parking Cost (cents)	0	0	0	0	0	0	0	0	0	0	0
Hourly Parking Cost (cents)	0	0	0	0	0	0	0	0	0	0	0
Sky Harbor Enplanements	0	0	0	0	0	0	0	0	0	0	0
Terminal Time (minutes)	1	1	1	1	1	1	1	1	1	1	1

39441

0

0

0

13235

0

0

0

113

2325

620

2855

125

422

106

75

0

283

885

Appendix 2  
Sample of Written Comments  
from Public Meetings



## **SAMPLE OF WRITTEN COMMENTS FROM PUBLIC MEETING, APRIL 30, 1996**

The following are excerpts from written comments received at the public meeting April 30, 1996 at the Desert Hills Middle School, or by mail following the meeting.

"...Spur Cross Ranch will be more attractive to developers if an all-weather road is built between 7th Street and Spur Cross Rd. along the Honda Bow alignment. Spur Cross Ranch residents don't yet exist but are already getting greater consideration than current residents....Those of us who care deeply about what's left of the desert don't want this road and we particularly don't want what it will bring. In an area where natural landscapes are disappearing daily I don't think we need to encourage the phenomenon further by building another highway through a sensitive area..."

--House is at Honda Bow and Spur Cross.

"...Don't ask County Taxpayers at large and local taxpayers in particular to either condone or subsidize the destruction of our own environment."

--Opposes east-west connection to Spur Cross Road.

"Please remove the Honda Bow Roads to Circle Mountain E. Down to 7th Street. They are not wanted by people in Cave Creek or the Circle Mountain area....I would like the County to look at preserving existing trails in the mountain areas..."

--Cave Creek

"...I don't want this area made into another City..."

--North 16th Street

"I am totally opposed to extending Honda Bow Rd. It would create more congestion on Spur Cross Rd. and would destroy very important nature habitat. ...Roads invite development..."

--Cave Creek

"Honda Bow extension is costly and invasive--it will be extremely damaging to the desert...."

--North 52nd Street

"...We are very concerned about any possibility of a road that links Honda Bow (from Spur Cross) across the ridge to New River....

- 1) Such a road would ... permanently scar the entire desert area.
- 2) ...add increased noise and smog pollution...
- 3) ...visibly abuse the visual environment of a pristine desert area accustomed to trail riders, open spaces, bright lit skies, and a natural mountain panorama.
- 4) ...The added traffic from such a road would create unmanageable traffic jams at the corner of Spur Cross Rd. and Cave Creek Hwy....
- 5) Such a road would devalue existing homes and ranches in the area."

--Cave Creek

"Take the Honda Bow Rd. out of the plan. It serves only developers not the rural residents..."

--Cave Creek

"Not enough notice of this meeting."

--N. 26th St.

"...when we see roads planned to give access to state land where there is no residents, and roads that are not needed going in, we are skeptical and wonder what the real motives are...We do not live out here and expect beautiful roads and conveniences. If we wanted those things we would live in the city...Existing roads are all the roads that should be in the plan..."

--West Circle Mountain Road

"I live one mile north of Honda Bow Rd. on Spur Cross Rd. since 1980. I felt the presentation by the County was very good and I was pleased with the outcome. I felt the County is to be commended for the response to the obvious expressed desires of the local community."

--Carefree

"I oppose the road (proposed) off of 7th Street that cuts into Pyramid Mountain...It...interferes with the homesites and aesthetic beauty of the area..."

--N. 12th St.

"I live 1/2 mile S. of Circle Mountain Rd. I would be very upset if Circle Mountain Rd. and Honda Bow was used as an outlet for the Cave Creek/Carefree area...(It) would be an expensive undertaking, acres of desert would have to be cleared and disturbed. A chief concern is traffic control."

--No. 19th St.

"There are a lot of hard working good people here and they are very upset about this."

--E. Cavalry Rd.

"I believe Honda Bow "Extension" to be ... inappropriate to the area...detrimental to the environment and not beneficial to those of us living, working and owning property in the New River area."

--New River

"My concern is the section of road you have proposed which angles southwest-northeast between 7th St. and Calvary. The problem with this plan is that the road would come right through the middle of the Rogers Creek valley. The lower end of this little valley is not occupied but the upper end is."

--homeowner near 20th St. and Calvary

"When will the Maricopa County Planners get it through their THICK SKULLS that we want to keep our rural lifestyle as much as possible. No new roads!! No new developments!! One home per acre!!

--New River

"I live on Cavalry Road in New River...I DO NOT want Cavalry paved. But it is in serious need of repair....Of course, no one in the Moore Valley area want a road put in between Spur Cross Road and Cavalry Road. It would serve no purpose without being connected to I-17 anyway. This would not only cost an astronomical amount of money for no good reason, but thoroughly alienate the inhabitants of this valley..."

--East Cavalry Road.

"One access is enough--to ruin my neighborhood is down right rude!"

--N. 18th St.

"I don't think there should be a 4 lane road down Spur Cross..."

--Mesa, Az.

"Please let the Cave Creek area stay rural..."

--Cave Creek

"I object to the proposed route of Honda Bow East to 20th Street and then north to Cavalry Rd. and object to the connection of Circle Mountain Rd....I do not want traffic coming through my housing area from Cave Creek namely Spur Cross Ranch development into New River....Please put Apache Peak and Apache Springs on the preservation list."

--E. Cavalry Rd.

"We feel that a better use of funds would be to improve the Carefree Highway...If a road needs to be made from Cave Creek to I-17 we feel that Desert Hills Road would be a better option due to existing roadway west of 7th Street."

--N. 14th St., New River

"I think it is unfounded and unfair to build a road from 7th Str. to Spur Cross Rd via Honda Bow or Circle Mountain or Calvary or anywhere near these areas...There are Indian Ruins all through this proposal plus washes--lets save the wilderness area for our grandchildren."

--N. 16th St., New River

"I think Circle Mtn. Rd. thru to Cave Creek Road is an excellent idea. It is unfortunate that the residents out in New River tend to be very shortsighted and resistant to change."

--New River

"...The Honda Bow Alignment...is not needed. This is a unique area with wildlife abundant and residents who are still shell shocked with Del Webb's Villages at Desert Hills. If Cave Creek needs better and more roads, please improve Spur Cross and School House...Please improve the existing roads with regular grading...Please notify residents before acting on any future rapes of the desert."

--N. 20th St.

"...I would like to address the issue of the paving of New River Road west of I-17 and north of Carefree Highway, and the 67th Avenue extension...I'm sure you are planning extensive development over there...Is that area in the Deer Valley School District? What would the water source be for any development?..."

--East Cavalry Rd.

"...I am very much concerned about the proposed extension of the Honda Bow Road...I have to wonder if this is going to be another example of ignoring the peoples wishes and catering to the developers..."

--N. 16th St.

"...Why in the world would I want more roads. All this does is destroy the desert, the homes to so many animals..."

--N 18th St.

"...We are fully aware of the scarcity of County road funds. In fact, the County does not even maintain many public roads dedicated to it because of such scarcity. We feel it would be much wiser and more responsive to use any funds to improve existing roads, some of which are highly deficient in safety and drainage..."

--N 20th St.

"I do not...want Circle Mountain Rd. to become a through street....

- 1) local traffic only
- 2) peace and quiet
- 3) less crime due to "no escape route" and due to less noticed by criminals as they don't pass through on their way to anywhere
- 4)...fewer wildlife killed on road due to less traffic
- 5) less smog from auto exhaust
- 6) less danger to residents taking a walk or riding horse or kids waiting for school bus."

--N. 20th St.

"...Next time a survey is mailed or a meeting planned I feel we should be included on the mailing address list."

--N. 16th St.

"We enthusiastically support the connection of Honda Bow Road with a road connecting with the Cave Creek/Carefree area...A connection from New River to Cave Creek has long been needed. Presently, this is a 22 mile drive...The proposed new road would de-load Carefree Highway and provide a safer route. Additionally, access will be provided for fire and first aid units.

--N. 20th St., New River

"...I am very much opposed to the proposed Circle Mountain/Honda Bow Roadway...We can't stop the onslaught, but we would like to slow it down so we can have a few years to enjoy what we've worked so hard for..."

--N. 18th St., New River

"...I am interested in the north-south major collector that runs parallel to and east of I-17 north of the Del Webb property. Due to ADOT's concern regarding the future traffic volume of the Desert Hills Interchange and the problem of the two-way frontage roads, this alternative road seems reasonable, and I approve of its location as it appears on your working document map. I feel that the State Trust Lands surrounding Daisy Mountain and Gavilan Peak must remain undeveloped and, obviously, a road closer to these mountains would not only scar the area, but would provide an incentive for the state to sell land along the road...."

--New River landowner

"I have heard several rumors about the future utilization of Tonto National Forest land that is currently only accessible via Fig Springs Road. If that is true, the land and home owners effected by the increased public use will want input now (before any improvements) concerning the roads realignment and improvement."

--N. Fig Springs Rd, New River

"The long range plans presented at the Desert Mountain Middle School looked fine to me....Along Honda Bow/Spur Cross road, I would like to see Honda Bow extend across the north border of Del Webb and connect with the freeway. This would meet I-17 at the Desert Hills exit. I also think that 7th Ave. should be extended north to Honda Bow..."

...Another link between us and Cave Creek might be the "Old New River Road"... I used this route a lot before it was blocked off at Cave Creek Wash.

...I also support the added road east of the access road from Honda Bow to the New River exit because of the commercial properties along that route...

...State Route 74 was supposed to get connected to I-17 at the New River exit from lake pleasant back in the eighties. What ever happened to that? That would save a lot of travel time for emergency response from our fire department.

...Although the Desert Hills Improvement Association didn't agree, I think it would be good to extend 7th Street south into Phoenix..."

--Sabrosa Rd, New River

"I have no problem with the proposed new Honda Bow Rd....It would give New River residents a more direct path to Cave Creek which is where a good many go to do some of their shopping."

--E. Circle Mountain Rd.

"...I don't believe anything that you people tell us..."

--N. 16th St.

"...I strongly object to the extension of Honda Bow Road in New River to connect with Spur Cross Road in Cave Creek..."

1) Spur Cross Road is already backed up at peak times with traffic waiting for access to Cave Creek Road...

2) Construction cost over the rough terrain and building a bridge over Cave Creek wash would be astronomical...

3) ...Everyone who lives here moved here in order to have privacy, places for horseback riding, natural surroundings, and a distance from city noises and traffic. Your plan is a way of destroying all that."

--Spur Cross Road

"No new Roads wanted or needed."

--N. 16th St.

"...I believe the extension (of Honda Bow) will ruin beautiful country, cause an unwanted traffic problem in Cave Creek and result in higher taxes."

--N. Spur Cross Rd., Cave Creek

"How will the Honda extension provide the best service to users who will be primarily travelling south to work areas and north to residential areas?..."

--N. 22nd St.

"...use the existing "New River Road" to the south to provide access to Cave Creek..."

--N. 22nd St.

"...a proposal to create a permanent green belt between New River and Cave Creek on state land would be in the best interests of the local people and the environment. Furthermore the route ...through the old Greer Ranch south of the Honda Bow alignment near 16th street is a significant Riparian zone with a wealth of cultural importance..."

--(name but no address)

"...It is very evident that the community is not interested in this proposed transportation system. It does not benefit us....We were here first and our opinion should be the only consideration..."

--N. 20th St.

"...I am not anti progress. I am for preserving our domestic tranquility as much as possible in spite of it. I am against Spur Cross access being provided through our community."

--N. 7th St.

"...Your Honda Bow alignment seems to be too costly and going nowhere. If you were to drop down to Desert Hills Road most of your road would be on flat land."

--N. 7th St.

"...Tie Honda Bow from Central to Desert Hill Interchange thereby adding a third freeway access to the residents of central area New River...Desert Hills to Pioneer Rd. is a Safety Hazard, not a solution!! Nobody builds 2 each 90 degree turns in a new road and has the audacity to call it a safe

thoroughfare!! Desert Hills is existing access available to MCDOT if you have the guts to take R/W to it and solve a traffic problem, not pacify Del Webb."

--E. Circle Mountain Rd.

"...We need a route to the freeway, not Cave Creek...."

--E. Circle Mountain Rd.

"...According to where Spur Cross Ranch is it would make a lot more sense to go out to Carefree Highway via Cave Creek Rd. ... Doesn't that make more sense or am I being too sensible?"

--N. 20th St.

"...With only one way in-same way out access to our present "valley" now we have much more security and safety for our families and less chance for all the crime that exits inside the City."

--E. Cavalry

"1. We need to add a non-motorized link (trail) across the State Trust Land north of the County Park to the Tonto National Forest. Please eliminate the indication of such a trail along the creek. The creek is all private property and most owners do not want a constant stream of hikers/bikers/equestrians crossing their property...

2....The rerouting of (Spur Cross) future traffic will hurt Cave Creek Commercial Core and harm our desire for a "center-of-own atmosphere."

3. ...I was pleased to see that an attempt to identify environmentally sensitive land was made, but it seems that only the mountain tops made it on the map. None of the riparian habitat...was considered. Planning to preserve Cave Creek, New River, Apache Springs, Skunk Creek, Cottonwood Creek, etc. is essential..."

--Cave Creek

**SAMPLE OF WRITTEN COMMENTS FROM PUBLIC MEETING, JUNE 27, 1996**

"The transportation aspects for motorized traffic seemed OK. PLEASE!!! Retain all trails -- and open Cave Creek Park horse gates."

--E. Maddock

"I want to emphasize having a bicycle lane on both sides of Carefree Highway for its entire length so it joins up with the lanes on Cave Creek Rd. All the minor arterials should at least have space for bikes..."

--W. Joy Ranch Rd.

"Why should we pay for roads for developers? Make them build their own roads including the New River Rd. Extension!"

--Phoenix

"The non-motorized travelways layout is an excellent design proposal. It helps retain the rural outdoors life style that is this North Valley area ... With the rapid growth of subdivisions, the outdoors rural life style and absence of any current trailways requirements it is very important that the proposed layout/design be completed and implemented soon."

--New River Road

"Before constructing ANY new roadways (which encourage further development), ALL existing roadways should be brought up to standard..."

--address unknown

"Please attend to the recommendations re environmental influence areas; traffic efficiency should not always be paramount--beauty of the desert is often more important and less replaceable than traffic movement."

--N. 22nd St.

"I feel it is ineffective to put an interchange at the old rest stop when putting one at Desert Hills exit and running a arterial (major) east to 7th Avenue thus cutting down on traffic along Carefree Highway. The people in Desert Hills do not want more traffic because of Del Webb. Do not dump traffic on Desert Hills Rd!"

--W. Irvine Rd.

"Would like to see a continuous left hand turn lane on Carefree Highway from Central Ave. to 16th Street with no median (beautification on both sides) for easy access to those streets and add left turn lanes the remainder of the scenic route."

--Desert Hills



"The 10 to 20 year plan shows Circle Mountain Rd. being constructed or improved. Is this simply improvement or is it being set up to be extended to the Cave Creek area? We were promised that would NOT be done."

--N. 20th St.

"Instead of building a new 4-lane road north from the Desert Hills Interchange about 1/4 mile east of I-17 and across private property--simply widen the existing frontage road to 4 or 6 lanes. Also connect the connect the Desert Hills Interchange east to 7th Street."

--New River

"Dust abatement on Mano Drive from New River Road to 6th Street...Paving it is the only practical solution."

--Mano Dr.

"43rd Ave. N. from Honda Bow alignment and northwest to New River Rd. is STUPID. An alternate would be to run Honda Bow Rd. STRAIGHT WEST to the New River Rd." The current alignment tears up a particularly beautiful hillside of Saguaros.

--New River

"Would like to see as much NATURAL vegetation kept as possible..."

--New River

"I am not at all surprised to see the new interchange for Del Webb being the rest area that was closed...Be sure (the developers) fund the development of the interchanges as they PROMISED."

--N. 11th Ave.

"Please plan horse trails ... so we can continue to enjoy the desert."

--E. Highland Rd.

"Tie in Honda Bow from I-17 to 7th Street."

--N. 11th Ave.

"An express bus to downtown using I-17 is needed now."

--W. Circle Mountain Rd.

"Strong attendance -- leaning in one direction -- fearful of overdevelopment and cynical about stated reasons for MCDOT "planning", i.e. preparation for development and sale of "improved" land to highest bidder. HELP!"

--New River

"I strongly support the inclusion of bike, hiking and equestrian paths, especially bike paths along the major arterials, including the full length of the Carefree Highway."

--N. 6th Dr.

"Build them and they will come. High density development almost always is preceded by unnecessary roadways."

--Sonoran North

"I live 1/4 mile south of Desert Hills Rd. and raise horses. By the time Desert Hills Rd. becomes 4 lanes I will have to move. Horses and that type of traffic don't mix."

--Desert Hills

Other agencies with significant impact on the study area should look to the Northeast Valley Area Transportation Plan as a statement of intent on the part of area residents, and are urged to conform their development activities in the study area to be consistent with the transportation recommendation of this plan.

The *Northeast Valley Area Transportation Plan* is one way that Maricopa County can help current and future residents by guiding the development of an efficient, convenient, and aesthetically pleasant transportation infrastructure.